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32

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1. Performance tests for children of pre-school age—R. STUTSMAN
2. An experimental study of the eidetic type—H. KLÜVER
3 & 4. A study of natio-racial mental differences—N. D. M. HIRSCH
5. A psychological study of juvenile delinquency by group methods—J. W. BRIDGES AND K. M. B. BRIDGES
6. The influence of puberty praecox upon mental growth—A. GESELL

VOLUME 2—1927

1 & 2. The mind of a gorilla—R. M. YERKES
3. The role of eye-muscles and mouth-muscles in the expression of the emotions—K. DUNLAP
4. Family similarities in mental-test abilities—R. R. WILLOUGHBY
5. Coordination in the locomotion of infants—L. H. BURNSIDE
6. The mind of a gorilla: Part II. Mental development—R. M. YERKES

VOLUME 3—January-June, 1928

1. An experimental study of the olfactory sensitivity of the white rat—J. R. LIGGETT
2. A photographic study of eye movements in reading formulae—M. A. TINKER
3. An experimental study of the East Kentucky mountaineers—N. D. M. HIRSCH
4. Responses of foetal guinea pigs prematurely delivered—G. T. AVERY
5. Objective differentiation between three groups in education (teachers, research workers, and administrators)—M. B. JENSEN
6. The effect of segregation on the sex behavior of the white rat as measured by the obstruction method—M. JENKINS

VOLUME 4—July-December, 1928

1. Observation and training of fundamental habits in young children—E. A. BOTT, W. E. BLATZ, N. CHANT, AND H. BOTT
2 & 3. Determination of a content of the course in literature of a suitable difficulty for junior and senior high school students—M. C. BURCH
4 & 5. Methods for diagnosis and treatment of cases of reading disability—M. MONROE
6. The relative effectiveness of lecture and individual reading as methods of college teaching—E. B. GREENE

VOLUME 5—January-June, 1929

1. The age factor in animal learning: I. Rats in the problem box and the maze—C. P. STONE
2. The effect of delayed incentive on the hunger drive in the white rat—E. L. HAMILTON
3. Which hand is the eye of the blind?—J. M. SMITH
4. The effect of attitude on free word association-time—A. G. EKDAHL
5. The localization of tactual space: A study of average and constant errors under different types of localization—L. E. COLE
6. The effects of gonadectomy, vasotomy, and injections of placental and orchic extracts on the sex behavior of the white rat—H. W. NISSEN

VOLUME 6—July-December, 1929

1. Learning and growth in identical infant twins: An experimental study by the method of co-twin control—A. GESELL AND H. THOMPSON
2. The age factor in animal learning: II. Rats on a multiple light discrimination box and a difficult maze—C. P. STONE
3. The acquisition and interference of motor habits in young children—E. MCGINNIS
4. A vocational and socio-educational survey of graduates and non-graduates of small high schools of New England—A. D. MUELLER
5 & 6. A study of the smiling and laughing of infants in the first year of life—R. W. WASHBURN

VOLUME 7—January-June, 1930

1. Tensions and emotional factors in reaction—E. DUFFY
2. Teacher influence on class achievement: A study of the relationship of estimated teaching ability to pupil achievement in reading and arithmetic—H. R. TAYLOR
3 & 4. A study of the effect of inverted retinal stimulation upon spatially coordinated behavior—P. H. EWERT
5. A study of the mental development of children with lesion in the central nervous system—E. E. LORD
6. An experimental study upon three hundred school children over a six-year period—N. D. M. HIRSCH

VOLUME 8—July-December, 1930

1. The amount and nature of activities of newborn infants under constant external stimulating conditions during the first ten days of life—O. C. IRWIN
2. Race and social differences in performance tests—S. D. PORTEUS, *et al.*
3. Language and growth: The relative efficacy of early and deferred vocabulary training, studied by the method of co-twin control—L. C. STRAYER
4. Eye-movements and optic nystagmus in early infancy—J. M. MCGINNIS
5 & 6. Reactions of kindergarten, first-, and second-grade children to constructive play materials—L. FARWELL

VOLUME 9—January-June, 1931

1 & 2. The status of the first-born with special reference to intelligence—H. H. HSIAO
3 & 4. An experimental study of bright, average, and dull children at the four-year mental level—H. P. DAVIDSON
5. An historical, critical, and experimental study of the Seashore-Kwalwasser test battery—P. R. FARNSWORTH
6. A comparison of difficulty and improvement in the learning of bright and dull children in reproducing a descriptive selection—F. T. WILSON

VOLUME 10—July-December, 1931

1. A comparative study of a group of southern white and negro infants—M. B. MCGRAW
2 & 3. An experimental study of prehension in infants by means of systematic cinema records—H. M. HALVERSON
4. The limits of learning ability in kittens—A. M. SHUEY
5 & 6. The effect of habit interference upon performance in maze learning—O. W. ALM

VOLUME 11—January-June, 1932

1. General factors in transfer of training in the white rat—T. A. JACKSON
2. The effect of color on visual apprehension and perception—M. A. TINKER
3. The reliability and validity of maze experiments with white rats—R. LEEPER
4. A critical study of two lists of best books for children—F. K. SHUTTLEWORTH
5 & 6. Measuring human energy cost in industry: A general guide to the literature—R. M. PAGE

VOLUME 12—July-December, 1932

1. Family resemblances in verbal and numerical abilities—H. D. CARTER
2. The development of fine prehension in infancy—B. M. CASTNER
3 & 4. The growth of adaptive behavior in infants: An experimental study at seven age levels—H. M. RICHARDSON
5 & 6. Differential reactions to taste and temperature stimuli in newborn infants—K. JENSEN

VOLUME 13—January-June, 1933

1. A critique of sublimation in males: A study of forty superior single men—W. S. TAYLOR
2. A study of the nature, measurement, and determination of hand preference—H. L. KOCH, *et al.*
3. The growth and decline of intelligence: A study of a homogeneous group between the ages of ten and sixty—H. E. JONES AND H. S. CONRAD
4. The relation between the complexity of the habit to be acquired and the form of the learning curve in young children—M. L. MATTSON
5. Eating habits in relation to personality development of two- and three-year-old children: A study of sixty-nine children in two nursery schools—A. A. ELIOT
6. Coordinating mechanisms of the spinal cord—O. C. INGEBRITSEN

Genetic Psychology Monographs *(continued)*

VOLUME 14—July-December, 1933

1. Mental growth during the first three years: A developmental study of sixty-one children by repeated tests—N. BAYLEY
2. A study of triplets: including theories of their possible genetic relationships—F. N. ANDERSON AND N. V. SCHEIDEMANN
3. The objective measurement of emotional reactions—H. V. GASKILL
4. Development of behavior in the fetal cat—J. D. CORONIOS
5. A study of certain language developments of children in grades four to twelve, inclusive—L. L. LABRANT
6. The effect of early and delayed practice on memory and motor performances studied by the method of co-twin control—J. R. HILGARD

VOLUME 15—January-June, 1934

1. Studies in the psychology of tone and music—P. R. FARNSWORTH
2. Motor learning of children in equilibrium in relation to nutrition—E. L. BEEBE
3. Discrimination limens of pattern and size in the goldfish *Carassius auratus*—J. B. ROWLEY
4. Limits of learning ability in the white rat and the guinea pig—B. F. RIESS

5 & 6. The limits of learning ability in rhesus monkeys—H. A. FJELD

VOLUME 16—July-December, 1934

1. A statistical study of ratings on the California Behavior Inventory for Nursery-School Children—H. S. CONRAD
2. An eye-movement study of objective examination questions—A. FRANDSEN
3. An experimental study of constitutional types—O. KLINEBERG, S. E. ASCH, AND H. BLOCK
4. The development of a battery of objective group tests of manual laterality, with the results of their application to 1300 children—W. N. DUROST

5 & 6. An experimental study in the prenatal guinea-pig of the origin and development of reflexes and patterns of behavior in relation to the stimulation of specific receptor areas during the period of active fetal life—L. CARMICHAEL

VOLUME 17—January-December, 1935

1. Organization of behavior in the albino rat—R. L. THORNDIKE
2. Brightness discrimination in the rhesus monkey—M. P. CRAWFORD
3. The limits of learning ability in cebus monkeys—A. M. KOCH
4. Nature-nurture and intelligence—A. M. LEAHY
5. On intelligence of epileptic children—E. B. SULLIVAN AND L. GAHAGAN
6. A study of the play of children of preschool age by an unobserved observer—D. L. COCKRELL

VOLUME 18—January-December, 1936

1. Sex differences in variational tendency—Q. MCNEMAR AND L. M. TERMAN
2. The process of learning to dress among nursery-school children—C. B. KEY, M. R. WHITE, M. P. HONZIK, A. B. HEINEY, AND D. ERWIN
3. A study of the present social status of a group of adults, who, when they were in elementary schools, were classified as mentally deficient—W. R. BALLER
4. The influence of specific experience upon mental organizations—A. ANASTASI

5 & 6. Studies in aggressiveness—L. BENDER, S. KEISER, AND P. SCHILDER

VOLUME 19—January-December, 1937

1. Psychological bases of self-mutilation—C. DABROWSKI
   Masculine temperament and secondary sex characteristics: A study of the relationship between psychological and physical measures of masculinity—H. GILKINSON
2. A psychological study of forty unmarried mothers—R. D. NOTTINGHAM
   Behavior problems in the children of psychotic and criminal parents—L. BENDER
3. Domination and integration in the social behavior of young children in an experimental play situation—H. H. ANDERSON
4. The sequential patterning of prone progression in the human infant—L. B. AMES

VOLUME 20—January-December, 1938

1. The relationship between characteristics of personality and physique in adolescents—P. S. DE Q. CABOT
2. Behavior problems of elementary school children: A descriptive and comparative study—I. Y. MASTEN
   Graphic representation of a man by four-year-old children in nine prescribed drawing situations—P. F. GRIDLEY
3. Differences between two groups of adult criminals—R. S. TOLMAN
4. A comparative study by means of the Rorschach method of personality development in twenty pairs of identical twins—E. TROUP
   Individual differences in the facial expressive behavior of preschool children: A study by the time-sampling method—C. SWAN

VOLUME 21—January-December, 1939

1. An experimental analysis of "level of aspiration"—R. GOULD
2. Some light on the problem of bilingualism as found from a study of the progress in mastery of English among pre-school children of non-American ancestry in Hawaii—M. E. SMITH
3. Domination and social integration in the behavior of kindergarten children and teachers—H. H. ANDERSON
   The capacity of the rhesus and cebus monkey and the gibbon to acquire differential response to complex visual stimuli—W. E. GALT
4. The social-sex development of children—E. H. CAMPBELL

VOLUME 22—January-December, 1940

1. Measuring human relations: An introduction to the study of the interaction of individuals—E. D. CHAPPLE
2. Aggressive behavior in young children and children's attitudes toward aggression—M. D. FITE
3. Student attitudes toward religion—E. NELSON
   The prediction of the outcome-on-furlough of dementia praecox patients—J. S. JACOB
   Significant characteristics of preschool children as located in the Conrad inventory—K. H. READ
4. Learning by children at noon-meal in a nursery school: Ten "good" eaters and ten "poor" eaters—J. B. MCCAY, E. B. WARING, AND P. J. KRUSE
   Studies in the interpretation of play: I. Clinical observation of play disruption in young children—E. H. ERIKSON

VOLUME 23—January-June, 1941

1. An analysis of certain variables in a developmental study of language—F. M. YOUNG
   Infant development under conditions of restricted practice and of minimum social stimulation—W. DENNIS
   An analysis of the mental factors of various age groups from nine to sixty—B. BALINSKY
2. Factors influencing performance on group and individual tests of intelligence: I. Rate of work—M. W. BENNETT
   Individual differences in apperceptive reaction: A study of the response of preschool children to pictures—E. W. AMEN

VOLUME 24—July-December, 1941

1. Twins *T* and *C* from infancy to adolescence: A biogenetic study of individual differences by the method of co-twin control—A. GESELL AND H. THOMPSON
   Finger nail-biting: Its incipiency, incidence, and amelioration—A. L. BILLIG
   An experimental study of the factors of maturation and practice in the behavioral development of the embryo of the frog, *Rana pipiens*—A. FROMME
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   Measurement of the size of general English vocabulary through the elementary grades and high school—M. K. SMITH
   Stereotypes in the field of musical eminence—P. R. FARNSWORTH

VOLUME 25—January-June, 1942

1. A study of factors determining family size in a selected professional group—J. C. FLANAGAN
   A genetic study of geometrical-optical illusions—A. WALTERS
   Interpretation of behavior-ratings in terms of favorable and unfavorable deviations: A study of scores from the Read-Conrad Behavior Inventory—K. H. READ AND H. S. CONRAD
2. Are there any innate behavior tendencies?—J. B. SCHOOLLAND
   An investigation of the intelligibility of the speech of the deaf—C. V. HUDGINS AND F. C. NUMBERS

Genetic Psychology Monographs *(continued)*

VOLUME 26—July-December, 1942

The critical frequency limen for visual flicker in children between the ages of 6 and 18—V. L. MILLER
Some factors determining handedness in the white rat—K. L. WENTWORTH
Motivation and behavior—E. FRENKEL-BRUNSWIK

VOLUME 27—January-June, 1943

Comparison of children's personality traits, attitudes, and intelligence with parental occupation—N. R. MADDY
2. A comparative study of mental functioning patterns of problem and non-problem children seven, eight, and nine years of age—M. L. PIGNATELLI

VOLUME 28—July-December, 1943

1. Separation anxiety in young children: A study of hospital cases—H. EDELSTON
2. Correlates of vocational preferences—W. A. BRADLEY, JR.

VOLUME 29—January-June, 1944

1. Mental changes after bilateral prefrontal lobotomy—S. D. PORTEUS AND R. D. KEPNER
2. A twin-controlled experiment on the learning of auxiliary languages—B. PRICE, W. J. KOSTIR, AND W. M. TAYLOR

VOLUME 30—July-December, 1944

1. A method of administering and evaluating the thematic appreciation test in group situations—R. M. CLARK
2. A study of anxiety reactions in young children by means of a projective technique—R. TEMPLE AND E. W. AMEN

VOLUME 31—January-June, 1945

1. The evolution of intelligent behavior in rhesus monkeys—B. WEINSTEIN
2. Perceptual behavior of brain-injured, mentally defective children: An experimental study by means of the Rorschach technique—H. WERNER

VOLUME 32—July-December, 1945

1. A clinical study of sentiments: I.—H. A. MURRAY AND C. D. MORGAN
2. A clinical study of sentiments: II.—H. A. MURRAY AND C. D. MORGAN

VOLUME 33—January-June, 1946

1. Interpretation of spontaneous drawings and paintings—T. S. WAEHNER
   Preferences for sex symbols and their personality correlates—K. FRANCK
2. Outstanding traits: In a selected college group, with some reference to career interests and war records—F. L. WELLS AND W. L. WOODS

VOLUME 34—July-December, 1946

1. The relation of emotional adjustment to intellectual function—J. L. DESPERT AND H. O. PIERCE
   The smiling response: A contribution to the ontogenesis of social relations—R. A. SPITZ
2. Finger-painting and personality diagnosis—P. J. NAPOLI

VOLUME 35—January-June, 1947

1. The thematic apperception technique in the study of culture-personality relations—W. E. HENRY
2. A continuation study of anxiety reactions in young children by means of a projective technique—M. DORKEY AND E. W. AMEN
   A study of the vocational interest trends of secondary school and college women—A. M. CAWLEY

VOLUME 36—July-December, 1947

1. Maze test validation and psychosurgery—S. D. PORTEUS AND H. N. PETERS
2. The diagnostic implications of Rorschach's test in case studies of mental defectives—I. JOLLES

VOLUME 37—January-June, 1948

1. The radio day time serial: A symbolic analysis—W. L. WARNER AND W. E. HENRY
   The relation of personality characteristics and response to verbal approval in a learning task—G. L. GRACE
2. The mechanism of vision: XVIII. Effects of destroying the visual "associative areas" of the monkey—K. S. LASHLEY
   A study of the relationship between handwriting and personality variables—P. CASTELNUOVA-TEDESCO

VOLUME 38—July-December, 1948

1. Modern language learning: The intensive course as sponsored by the United States Army, and implications for the undergraduate course of study—M. LIND
   Conflict: A study of some interactions between appetite and aversion in the white rat—M. A. TOLCOTT
2. Schizophrenia and the *MAPS* test: A study of certain formal psycho-social aspects of fantasy production in schizophrenia as revealed by performance on the Make a Picture Story (*MAPS*) Test—E. S. SHNEIDMAN
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VOLUME 39—January-June, 1949

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VOLUME 44—July-December, 1951

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VOLUME 45—January-June, 1952

1. Japanese-American personality and acculturation—W. CAUDILL
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Genetic Psychology Monographs *(continued)*

VOLUME 46—July-December, 1952

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As the psychiatric aide sees his work and problems—F. L. WELLS, M. GREENBLATT, AND R. W. HYDE
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Genetic Psychology Monographs *(continued)*

VOLUME 59—January-June, 1959

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VOLUME 66—July-December, 1962

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A study of the concept of the feminine role of 51 middle-class American families—A. STEINMANN

VOLUME 68—July-December, 1963

1. Brain dynamism as reflected in illusions—G. K. YACORZYNSKI
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(Manuscripts are printed in the order of final acceptance)

Using information from wrong responses for cross-cultural comparison in Israel 3
By B. F. Nevo and S. Ben-Tuvia

Categorization as a function of attitude and ego-involvement 9
By Salwa J. Makdah and Lutfy N. Diab

Developmental differences in competitive behavior of kibbutz and city children in Israel 19
By Ariella Shapira

Instigators and inhibitors of aggression in a field experiment 27
By Mary B. Harris

Some factors influencing helping: The effects of a handicap, responsibility, and requesting help 39
By George C. Samerotte and Mary B. Harris

The effects of ethnicity of subject and accent and dependency of confederate on aggressiveness and altruism 47
By Mary B. Harris and Dolores R. Klingbeil

The application of McClelland's national development model to recent data 55
By Lorenz J. Finison

Counterattitudinal and proattitudinal advocacy in the forced compliance paradigm: A test of self-perception theory 61
By Robert Apsler

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Cognitive consistency, repression-sensitization, and level of moral judgment: Reactions of college students to the Watergate scandal 69
By James B. Garrett and Benjamin Wallace
Children's social sensitivity, altruism, and self-gratification 77
By P. S. Fry
The role of evaluation apprehension in Rokeach's value change paradigm 89
By Arnold J. Campbell and T. Edward Hannah
Effects of aptitude, diligence, and performance on the attribution of motivation and ability 97
By Daniel C. Williams
Participants' perceptions of themselves and leaders in two kinds of group experience 103
By Thomas L. Morrison and M. Duane Thomas
Race and sex as stimuli for negative affect and physical avoidance 111
By Michael Hendricks and Richard Bootzin
The effect of selective attention on communicating personality impressions 121
By Raymond P. Perry
CROSS-CULTURAL NOTES
The effect of perceived instrumentality on the relationship between the valence of pay and job performance 131
By Christopher Orpen
Relation of subsistence economy to a cognitive task in two East African societies ... 133
By Robert L. Munroe, Ruth H. Munroe, and Robert E. Daniels
Differences between Mormon missionaries' perceptions and Chinese natives' expectations in intercultural transactions 135
By Ralph D. Barney and G. Y. Chu
REPLICATIONS AND REFINEMENTS
Variation in group conformity influence 137
By E. Leon Knight, Mark I. Alpert, and Robert E. Witt
A sex difference in shape preference 139
By Ruth H. Munroe, Robert L. Munroe, and Leonard M. Lansky
Machiavellianism and locus of control 141
By Terry J. Prociuk and Lawrence J. Breen
A Cyprus workshop: Intervention methodology during a continuing crisis 143
By Leonard W. Doob
CURRENT PROBLEMS AND RESOLUTIONS
A shopping list experiment of the images of prepared and nonprepared foods 145
By Christopher Orpen and Anthony Chase
The pledge as an instrument of behavioral change 147
By John H. Hallaq
BOOKS RECENTLY RECEIVED 149

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USING INFORMATION FROM WRONG RESPONSES FOR CROSS-CULTURAL COMPARISON IN ISRAEL*[1]

The University of Haifa, Israel

B. F. Nevo and S. Ben-Tuvia

Summary

The primary aim of this study is to demonstrate the usefulness of a systematic construction of ability-test distractors for cross-cultural comparisons.

A vocabulary test of seven items was devised in such a way that the five distractors of each item consisted of (*a*) the right answer, (b_1),(B_2) words that neither resembled nor associated with the stimulus in meaning or sound, (*c*) a word that was similar in sound to the stimulus, and (*d*) a word that was similar in meaning to the stimulus.

The sample consisted of 216 candidates to Haifa University, between the ages of 18 and 25. Their parents were of two different ethnic origins: North African ($N = 72$) and East European ($N = 144$). The two groups were matched on sex and general level of intelligence.

It was found that *Ss* from the European background tended to choose type (*d*) distractor as their best guess when they did not know the right answer. On the other hand, *Ss* from North African origin preferred distractors of type (*c*).

A. Introduction

The performing of ability tests by different groups is studied on various levels. Some scientists have used an *IQ* index in order to concentrate upon differences between *general* levels of intelligence (e.g., 4, pp. 1-109; 7, 12, 16). Others deal with *specific* components of the cognitive domain, trying to determine whether a certain group is equally lower than other groups in *all* abilities measured, or if differences exist mainly in *some* of the abilities. If the second possibility is true, it is usually asked which intellectual functions are most impaired (e.g., 5, 6, 8, 9, 11, 15).

One may also look for cognitive differences on a third and more specific level which comes nearer to the thinking processes. This search is achieved

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by dealing with the responses to *items* of tests rather than with total scores of scales or batteries (3).

It was the main interest of our study to investigate cultural differences in Israel on this third level. We chose to approach the problem by following the ideas of Guttman and Schlesinger, who suggested a systematic construction of distractors as a means for ". . . differential scorings of subjects on the types of wrong answers to which they are attracted . . ." and also for the ". . . increasing of the possibilities of using a test for diagnostic and remedial purposes . . ." (2, p. 569).

Using distractors seemed to be most appropriate to investigate more systematically some unsystematic impressions we heard from teachers, psychologists, and other professionals. Those impressions suggested that *Ss* with a Middle Eastern-North African cultural background would tend to produce associations based on sounds, while the typical association for *Ss* of European cultural background is semantically based. Two studies by Stahl (13, 14) supported, though indirectly, these impressions.

In the first study, Stahl compared Eastern Jewish homiletics books (religious interpretations of the Torah and the Mishnaic laws), with similar books of the European Jewish tradition. Among other differences, he found the Eastern interpretations to be, more than the typical European ones, based on tiny details in the texts, on individual words, and occasionally on specific letters. In the second study, the same investigator compared jokes told by children from Eastern and European culture backgrounds. Only *one* cultural difference out of seven which were hypothesized was found to be clearly significant. This was the fact that the frequency of jokes based on lingual and vocal puns was higher among the Eastern *Ss*.

Accordingly, a seven-item vocabulary test with five systematically constructed distractors for each item was produced. The research hypothesis was that there are ethnic differences between Israelis whose parents were born in North Africa and Israelis whose parents were born in East Europe, with respect to the typical error of each group. In other words, it was hypothesized that there is a qualitative difference in the guessing behavior of *Ss* from different culture samples. These differences may vary from word to word, but do so in a consistent way.

B. Method

1. *Subjects*

The complete sample consisted of 216 Israeli born candidates to the University of Haifa, during 1972, between 18 and 25 years of age. *Ss* were of two different ethnic origins, according to their parents' place of birth. Seventy-

two *Ss* were of North African origin (i.e., their parents were born in Algeria, Morocco or Tunisia). One hundred and forty-four *Ss* were of East European origin (i.e., their parents were born in Poland, Romania, or Russia).

For each "North African" *S*, two "Europeans," matched on sex and level of general intelligence, were included in the sample.

2. *Tests*

Seven items, the distractors of which were constructed in a way to be described below, were mixed with 26 other items to produce a usual multiple-choice vocabulary test.

In each item there was a stimulus word and five possible responses among which the *S* had to find the right answer. The five distractors of each of the seven items consisted of the following: (*a*) the right answer, (b_1), (b_2) two words that did not resemble or could not be associated easily with the stimulus word, (*c*) a word whose *sound* was similar to that of the stimulus, and (*d*) a word that had a *meaning* association or a meaning similar to that of the stimulus.

The test was in Hebrew. Because of translation difficulties a fictitious English example is given here: stimulus word—"hypothesis," (*a*) right answer—"supposition," (*b*) irrelevant distractor—"name of a bird," (*c*) vocal similarity—"deep hypnosis," (*d*) meaning similarity—"assumption." The order in which the distractor types were presented was changed randomly from one item (word) to another in order to prevent position affect.

3. *Procedure*

The test was administered to the *Ss* as a part of their entrance examination to the University of Haifa. The vocabulary test had a time limit, but practically all *Ss* could and did finish it.

C. Results

As described above there were three ways of answering the items wrongly: (*b*) one of the irrelevant distractors, (*c*) the distractor with a meaning similarity, or (*d*) the distractor with a vocal similarity.[2] The results are summarized in Table 1.

In general, each of the irrelevant distractors was chosen less frequently than either of the other two distractors. The groups of *Ss* were very similar with respect to the frequency with which they chose the correct answer and the frequency with which they chose either of the irrelevant distractors. In

[2] The phenomenon of not answering was negligible, partly because guessing was encouraged.

TABLE 1
PERCENTAGE RESPONSE TO EACH DISTRACTOR, AVERAGED OVER ITEMS, ACCORDING TO PARENTS' COUNTRY OF ORIGIN

Origin of *Ss*' parents	Number of *Ss*	Response type				
		(*a*) Right	(b_1) or (b_2) Irrelevant	(*c*) Vocal similarity	(*d*) Meaning similarity	Ratio (*c*)/(*d*)
North Africa	72	44.7	17.6	22.8	14.9	1.53
East Europe	144	47.5	17.2	14.1	21.2	.67

this research, interest is centered on the relative frequency with which *Ss* chose distractor (*c*)—vocal similarity—when they did choose one of the distractors (*c*) or (*d*). The data are in accordance with the research hypothesis, as can be see from the last column of Table 1. A procedure based on the detailed responses of each *S* to each item was developed to test the statistical significance of this phenomenon (10). This procedure is a development of the "Logistic model" [see D.R. Cox (1)]. For a model that assumes that the groups did not differ with respect to the frequency with which they responded with distractor (*c*) given that they responded with either (*c*) or (*d*), the value of χ^2 is 22.5 with 7 *df* ($p < .005$). Thus, the groups are concluded to be significantly different with respect to the ratio (*c*)/(*d*) at the .005 level of significance.

D. DISCUSSION

The results suggest that using distractors as a means of studying cross-cultural cognitive differences is feasible and useful. This method can be tried out in further studies of Israeli subcultures. Secondly, our main hypothesis was supported: group differences were in the predicted direction and showed that *Ss* from a North-African cultural background opted more for distractors based on sounds, while *Ss* from a European background opted more for distractors based on meaning.

However, it would be an overgeneralization to infer from the results detailed above that, for example, offspring of Israeli parents born in Africa respond and associate more to vocalization and sound of words than to their content. The (*c*)/(*d*) ratios of the two groups would not be expected to be exactly the same in another experiment based on other items, and/or other *Ss*.

In order to make such a strong prediction, cultural group differences should be not only statistically significant (as they were in our study), but also of greater absolute magnitude. Still, it is not an unreasonable hypothesis to suppose that there is a cultural difference in the way people attach quality

to unknown words which are presented to them. Subcultural differences in Israel, might be mitigated by educational and generational changes. It should be pointed out that our *Ss* were second generation high-school graduates and have been "Israelized" to a great extent. We may find larger differences if we test *Ss* with a lower educational level, or first generation immigrants.

Together with Stahl's (13, 14) results, it seems that we might have here an area of psycholingual differences among ethnic groups in Israel.

Our positive results could be considered as a successful replication of the Jacobs and Vandeventer study (3) which showed a significant difference between the Eskimo and the Temne on their wrong responses to items of the Coloured Progressive Matrices Test. The present research, however, went one step further, matching the two samples on their general level of intelligence, and thereby makes it less likely that this variable, by itself, might serve as an explanation for the specific cultural differences which are found.

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CATEGORIZATION AS A FUNCTION OF ATTITUDE AND EGO-INVOLVEMENT*[1]

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SUMMARY

The purpose of this study was to investigate the effects of varying degrees of ego-involvement on the categorization process of *Ss* with positive and negative attitudes toward a controversial social issue—namely, the presence of Palestinian Commandos in Lebanon—with the use of the "own-categories" procedure.

The *Ss* were 88 Lebanese male students at the American University of Beirut, classified into highly involved and less involved, pro- and anti-Commando *Ss*. Utilizing the own-categories procedure, the *Ss* categorized 46 statements expressing different opinions about Palestinian Commandos.

The results showed that while neither attitude nor ego-involvement produced significant differences in the number of categories used, yet both of these variables were associated with significant differences in the size of the latitude of rejection.

It was suggested that the relatively high degree of authoritarianism characterizing our Arab *Ss* was a possible cross-cultural variable affecting the results. However, it was proposed that in order to equate degrees of ego-involvement, future research should utilize two issues, one on which a positive stand and another on which a negative stand is socially acceptable.

A. INTRODUCTION

The purpose of this study was to investigate the effects of varying degrees of ego-involvement on the categorization process of Arab Lebanese *Ss* with positive or negative attitudes toward a controversial social issue—namely,

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[1] This paper is based upon a Master's thesis submitted to the Department of Psychology at the American University of Beirut, Lebanon, in 1970. The research was carried out by the first author during the Spring of 1970 under the direction of the second author who acted also as Thesis Committee adviser and chairman. Thanks are due Professors E. C. Dalrymple-Alford and J. Chimienti who, as Thesis Committee members, gave valuable comments and suggestions. Requests for reprints should be sent to the second author at the address shown at the end of this article.

the presence of Palestinian Commandos in Lebanon—with the use of the "own-categories" procedure.

The advantages of specifying a person's attitude in terms of latitudes of acceptance, rejection, and noncommitment, rather than by a single point on a continuum, have been demonstrated in a number of studies utilizing different issues: for example, the 1960 U.S. presidential election issue (8) and the Arab unity issue with a non-Western sample (2). The size of the latitude of rejection was developed by Sherif and his colleagues as "the best *single* index" of the *S*'s degree of ego-involvement in an issue, regardless of his specific stand on that issue.

The original investigation of the own-categories procedure as an indirect technique for the assessment of attitudes was made by Sherif and Hovland (9), utilizing the issue of the social position of Negroes in the United States [Sherif and Hovland (8)]. They found that highly involved *Ss* tended to use fewer categories than those less involved; furthermore, the highly involved *Ss* tended to place a large number of items in their most objectionable category, thus resulting in a latitude of rejection much larger than that of the less involved *Ss*.

The own-categories procedure has already been utilized in a number of studies investigating the relationship between extremity of attitude, degree of ego-involvement, and the categorization process. Among the advantages of using the own-categories procedure as a technique for the assessment of attitudes are that (*a*) it is disguised—i.e., the *S* is not aware that his attitude is being investigated, (*b*) it is structured—i.e., it requires no special coding system, unlike most indirect, projective techniques—and (*c*) it appears to be well suited for cross-cultural research, since the logic of this method is expected to be invariant, being based on "general principles of human judgment" (8).

Most of the studies testing the use of the own-categories procedure as a technique for assessing attitudes have utilized *Ss* whose attitudes were strongly favorable toward the object or issue in question (e.g., 4, 6, 9). In the original study by Sherif and Hovland (9), anti-Negro *Ss* were not readily available; also, the results of the La Fave and Sherif study (4) indicated that the anti-Negro white *Ss* were not as highly involved as the Negro *Ss* in the issue at hand; and, finally, Reich and Sherif (6) stated that they were not able to include a sample of *Ss* with unfavorable stand on the issue who were comparable in age and education to the pro *Ss* used in the study. Perhaps the only apparent exception utilizing the own-categories procedure with anti *Ss* was a

study by Vaughan (12) in which highly involved *Ss* with unfavorable attitude toward "Latins" in Texas and relatively uninvolved *Ss* were used. The results of this study indicated that the highly involved anti-Latin *Ss* tended to use fewer categories and to have a larger latitude of rejection than the uninvolved *Ss*. In commenting on Vaughan's study, Sherif *et al.* state that

> Owing to the difficulty of securing research subjects thus divided (favorable and unfavorable toward the same object) and equally adamant, our case must rest on a comparison of Negro and pro-Negro whites with white anti-Latin subjects. (8, p. 119).

However, further evidence in the literature concerning *Ss* with favorable and unfavorable attitudes toward an issue has often been inconsistent. For example, Zavalloni and Cook found that ". . . the prediction that *Ss* unfavorable to the group will displace items toward the favorable end of the scale, placing many of them in the most favorable category, . . . has not been supported" (14, p. 51). Also, in a study by Upshaw with pro- and anti-Negro *Ss*, it was found that ". . . the experimental procedure was adequate for P (pro) judges. There are grounds for disputing the validity for A (anti) judges . . ." (11, p. 94). While Moscovici stated in his review of attitudes and opinions that ". . . *Ss* with a favorable attitude show more inconsistency" (5, p. 238), Diab (1) obtained the opposite result in his study of favorable and unfavorable stands of Arab *Ss* toward the Arab unity issue. Also, Ward (13) showed that judgments made by anti-Negro *Ss* were not found to differ as a function of their degree of involvement in the issue.

In view of the above contradictory and inconsistent findings, the present study attempted to test the following generalization proposed by Sherif *et al.* by utilizing the issue involving the presence of Palestinian Commandos in Lebanon:

> Categorization by respondents who have attitudes favorable and unfavorable to the object of judgment will show the *same* characteristics (namely, the use of few categories with disproportionate accumulation of items in the categories *opposed* to their own stand on the issue) *provided that both are equally involved in their stands* (8, pp. 118-119).

The specific hypotheses tested were the following:

1. Highly involved *Ss*, with positive or negative attitudes, will use fewer categories than less involved *Ss*.

2. For similar levels of ego-involvement, *Ss* with positive attitudes will not differ from *Ss* with negative attitudes in the number of categories they use.

3. Highly involved *Ss*, with positive or negative attitudes, will have a latitude of rejection larger than that of less involved *Ss*.

4. For similar levels of ego-involvement, *Ss* with positive attitudes will not differ from *Ss* with negative attitudes in the size of their latitude of rejection.

B. Method

1. *Subjects*

The sample consisted of 88 male Lebanese students at the American University of Beirut, 48 of whom stated that their friends considered them to be pro-Commandos, while the remaining 40 *Ss* stated that their friends considered them to be anti-Commandos. Such a procedure for selecting pro- and anti-Commando *Ss* was thought to be superior to the use of more direct questioning, in that it probably involved lesser sensitization of the *S* to the fact that he was revealing his own attitudes and, therefore, probably contributed to a lesser tendency to fake on the part of the *Ss*, particularly in the case of those who had anti-Commando feelings.

2. *Materials*

(*a*) Forty-six statements expressing different opinions about Palestinian Commandos and ranging from an extremely pro- to an extremely anti-Commando stand were used. These statements, each typed on a separate card, were selected (with some of them being slightly modified) from the Grice-Remmers Generalized Attitude Scale, Forms A and B (7, pp. 411-413). Of these statements, six were extremely favorable to Palestinian Commandos, another six were extremely unfavorable, and the remaining 34 items constituted the intermediate statements, the latter being the kind of statements that are usually subject to systematic displacements (4, 8). These 46 statements constituted the stimulus material used in the sorting task utilizing the own-categories procedure, examples of which are the following: "Palestinian Commandos are superior in every way to the rest of the world" (an extremely favorable statement); "Palestinian Commandos are often sincere in their actions," also "Palestinian Commandos have some undesirable traits," and "Palestinian Commandos are a necessary evil to be endured" (three intermediate statements); and, finally, "Palestinian Commandos are the most despicable people in the world" (an extremely unfavorable statement).

(*b*) A scale consisting of 10 statements representing the various existing stands on the issue of Palestinian Commandos' presence in Lebanon was constructed. Ten Lebanese male students with different stands on the issue were

used as judges to make certain that the statements used represented all the different existing stands on the issue in question and to rank them in a descending order from an extremely pro- to an extremely anti-Commando stand, with one statement expressing a neutral position being added as the last statement. Statements 1, 5, 9, and 10 are reproduced below:

1. Complete support of the presence of Palestinian Commandos in Lebanon and actual participation in their military and nonmilitary (political, informational, and financial) operations, considering these operations as a basis for a "national liberation war."

5. Acceptance of the presence of Palestinian Commandos as long as their military operations are restricted only to some specific area of the Lebanese-Israeli border, such as the "Arqoub" district and the slopes of Mount Hermon.

9. Complete suppression of all Palestinian Commando elements and their supporters in Lebanon by all possible means.

10. I do not really care one way or the other concerning the issue of the presence of Palestinian Commandos in Lebanon.

3. *Procedure*

All *S*s were tested individually. The testing session consisted of two parts:

a. Part I. The *S* was first presented with the 46 cards to categorize and was given the instructions used by Sherif and Hovland (9) for the own-categories procedure. After completing the sorting task, the *S* was asked to number his piles from 1 (most unfavorable to Palestinian Commandos) to *n*, the last pile (most favorable to Palestinian Commandos). To secure the latitudes of acceptance, rejection, and noncommitment, the procedure suggested by Sherif *et al.* (8) and used in their research was followed. For each *S*, the number of categories used for sorting was recorded, and the size of the latitudes of acceptance and rejection (and hence, noncommitment) was determined. The size of the latitudes of acceptance and rejection was measured in terms of the number of items (statements) making up acceptable or objectionable categories, and in terms of the number of categories accepted or rejected, expressed as a ratio of the total number of categories used.

b. Part II. The scale consisting of the 10 rank-ordered statements was then administered to the *S*, following the procedure suggested by Sherif and his colleagues (8) utilizing the method of ordered alternatives for the assessment of degree of ego-involvement. Specifically, the *S*s were divided into two groups such that those rejecting five or more statements were classified as highly involved, while those rejecting four or fewer statements were classified as less involved. According to this measure of ego-involvement, there were

39 highly involved *Ss* (21 pro- and 18 anti-Commandos) and 49 less involved (27 pro- and 22 anti-Commandos).

C. Results

The measure used for testing hypotheses one and two was simply the total number of categories used for sorting the 46 statements according to the own-categories procedure, while the results related to differences in the size of the latitude of rejection (i.e., hypotheses three and four) were presented in terms of the two measures used in scoring—namely, (*a*) the number of statements making up the latitude of rejection and (*b*) the number of categories rejected, expressed as a ratio of the total number of categories used.

An analysis of variance[2] showed no significant differences in the number of categories used between highly involved *Ss* and those less involved, nor between *Ss* with positive attitudes and those with negative attitudes. The former finding is not in line with expectations and fails to support the first hypothesis, while the latter finding is consistent with the second hypothesis.

The results relevant to hypotheses three and four that dealt with the size of the latitude of rejection showed that, regardless of which measure is used (i.e., number of statements rejected or proportion of categories rejected), (*a*) highly involved *Ss* had a latitude of rejection significantly larger than that of less involved *Ss*, in line with hypothesis three, but (*b*) contrary to expectations in hypothesis four, pro-Commando *Ss* also had a latitude of rejection significantly larger than that of anti-Commando *Ss*.

Some clarification of the finding that pro-Commando *Ss* had a significantly larger latitude of rejection than anti-Commando *Ss* is suggested from an analysis of the *Ss*' verbal responses on the 10-statement scale showing the percentages of *Ss* from each subsample checking as "most acceptable" various positions (statements) on this scale. It appears that pro-Commando *Ss* were more extreme in their stand on the issue than anti-Commando *Ss* of the same level of involvement. All highly involved pro-Commando *Ss* checked as "most acceptable" the two most extreme pro-Commando stands on the issue: i.e., positions one and two (about 95 percent of them checked the most extreme pro stand). On the other hand, for the highly involved anti-Commando *Ss*, only about 22 percent checked as "most acceptable" the stand next to the most extreme anti-Commando position—i.e., position eight—with none of them checking the most extreme anti position as being "most acceptable." A

[2] Because of the unequal number of *Ss* in the various subsamples, the method of "expected equal frequencies" cited by Ferguson (3, pp. 319-320) was used for this analysis of variance and for all following analyses.

chi-square test based on these frequencies yields a value of 25.480 which is significant beyond the .001 level (for one degree of freedom). Similarly, for the less involved *Ss*, about 63 percent of the pro *Ss* checked as "most acceptable" the two most extreme pro stands on the issue (about 52 percent of them checking the most extreme pro stand); while a significantly smaller number of anti *Ss*, about 27 percent, checked the two most extreme anti positions (with only about five percent of them checking the most extreme anti stand). These frequencies yield a chi-square value of 6.200, which for one degree of freedom is significant at the .05 level. Thus, differences between pro and anti *Ss* in extremity of stand on the issue in question may be producing differences in the size of the latitude of rejection of pro- and anti-Commando *Ss*.

D. Discussion

The results obtained in this study demonstrate the effects of varying degrees of ego-involvement, as well as the effects of positive and negative attitudes on the categorization process utilizing the own-categories procedure. The categorization measures used were the number of categories and the size of the latitude of rejection.

With respect to the first measure, it was hypothesized that highly involved *Ss* would use fewer categories for sorting the attitude items than *Ss* less involved in the issue. However, the results obtained show that, contrary to previous findings (8), *Ss* highly involved in the issue of Palestinian Commandos in Lebanon did not differ from less involved *Ss* in the number of categories used: viz., 3.79 and 4.02 for highly involved and less involved subjects, respectively. On the basis of previous studies by Sherif and his colleagues, only highly involved *Ss* would be expected to use such a small number of categories. The results obtained in this study utilizing Arab male *Ss* may indicate a cultural difference in the way people deal with stimulus objects. As already known, the Arab culture is characterized by a rather high degree of authoritarianism. Some basic aspects of authoritarianism are rigidity and intolerance for ambiguity which usually result in sticking to few, simple, and rigid categories when dealing with stimulus objects. Therefore, it is possible that authoritarianism, which characterized our Arab male *Ss*, was a factor overriding the effects of varying degrees of involvement and resulting in the use of few categories by all *Ss* whether highly involved or not.

The second hypothesis, also dealing with the number of categories used, was that *Ss* with positive attitudes would not differ from *Ss* with negative attitudes in the number of categories they use, provided equal levels of in-

volvement. In line with this hypothesis, it was found that pro-Commando and anti-Commando *Ss* used a similar number of categories for sorting the attitude items. Yet, it is difficult to say whether this similarity between pro and anti *Ss* is due to a real lack of differences between positive and negative attitudes on the issue of Palestinian Commandos in Lebanon, or whether it is due to the effect of authoritarianism characterizing the *Ss*. It is more likely that the observed similarity between pro and anti *Ss* is due to the effect of authoritarianism, for the mean number of categories used by both groups of *Ss* was relatively small: 3.77 and 4.10 for pro- and anti-Commando *Ss*, respectively. Moreover, this would appear to be more likely the case, particularly if the finding is viewed in the light of the remainder of the results, specifically, those related to the size of the latitude of rejection.

Hypothesis 3 predicted that highly involved *Ss* would have a latitude of rejection larger than that of less involved *Ss*. The results obtained supported this prediction and were, therefore, in line with the findings of previous studies (8). It was found that *Ss* highly involved in the issue of Palestinian Commandos in Lebanon had a significantly larger latitude of rejection than *Ss* less involved in this issue, regardless of which measure for the size of the latitude of rejection was used (i.e., number of items or proportion of categories).

Hypothesis 4 predicted that pro and anti *Ss* would not differ in the size of their latitude of rejection, provided equal levels of involvement. However, it was found that pro-Commando *Ss* had a significantly larger latitude of rejection than anti-Commando *Ss*. This finding is similar to the results obtained previously (4, 8) and raises similar questions. The most likely explanation for this finding is that the pro-Commando *Ss* in this study were in fact more extreme and more involved in the issue at hand than the anti-Commando *Ss*.

With respect to stand taken on the issue in question, as expressed on the 10-statement scale, the pro-Commando *Ss* were a homogeneous group with the majority adopting an extreme pro stand. On the other hand, the anti-Commando *Ss* were a heterogeneous group with respect to stand taken on the issue, with very few adopting an extreme anti stand. This means that the pro-Commando *Ss* had a more extreme stand on the issue and were more involved in this stand than the anti-Commando *Ss* and, consequently, had a larger latitude of rejection. This explanation of differences in degree of involvement between pro and anti *Ss* was advanced by Sherif and Hovland and by La Fave and Sherif to account for their results (4, 9). In the former study, anti

Ss equally involved as the pro *Ss* were not readily available. In the latter study, anti *Ss* though available and expected to behave similarly to the pro *Ss* were found to behave in a manner indicating a lower degree of ego-involvement than the pro *Ss*.

On the basis of these findings and those of the present study, and in light of the evidence in the literature comparing *Ss* with positive and negative attitudes, it seems warranted to conclude that there may be basic differences between *Ss* with favorable and unfavorable attitudes toward a socially significant object or issue. This differential effect of positive and negative attitudes may manifest itself in differences in the degree of ego-involvement in that object or issue. Subjects with attitudes favorable and unfavorable to the same social object are not likely to be equally involved in that object. This does not mean, however, that *Ss* with positive attitudes will always be more involved than those with negative attitudes. Whether *Ss* with a pro stand or those with an anti stand on an issue will be more ego-involved appears to depend on the specific issue utilized. For example, the two studies mentioned above (4, 9) dealt with attitudes toward Negroes in the United States, with the use of college students as *Ss*. An anti-Negro stand, particularly among college students, was not socially acceptable. Similarly in the present study, an anti-Commando stand is not a socially acceptable stand among the *Ss* used. On the other hand, Vaughan's study (12) in which highly involved anti *Ss* were found to behave in a fashion comparable to that of the pro *Ss* in Sherif and Hovland's study, dealt with attitudes toward Latins in a place ". . . where the normative trend to appear 'liberal' about minority groups was not strong: namely, in south Texas" (10, p. 126). This means that an anti-Latin stand was a socially acceptable stand in that study.

This analysis suggests that in future research comparing the categorization processes of *Ss* with positive and negative attitudes, two issues should be used: one on which it is socially acceptable to hold a pro stand and one on which an anti stand is socially acceptable. Perhaps this is the only way in which one can obtain two groups of *Ss*, one with favorable attitudes towards one issue and the other with unfavorable attitudes towards another issue and yet have similar levels of ego-involvement.

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DEVELOPMENTAL DIFFERENCES IN COMPETITIVE BEHAVIOR OF KIBBUTZ AND CITY CHILDREN IN ISRAEL*

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SUMMARY

Developmental differences in competitive behavior of 192 kibbutz and city boys and girls in Israel were investigated. Pairs of children played the marble-pull game in which the only adaptive solution to the task was turn-taking or cooperative behavior. Children of four age levels (4, 5, 7 to 8, and 10 to 11 years) participated. Forty-eight pairs of each subculture played the game. In both groups the younger children were less competitive than older children ($p < .001$) and thus earned more prizes. Kibbutz children were less competitive than city children ($p < .001$), this difference being most pronounced at age 5.

A. INTRODUCTION

Piaget's theory (6) on the moral judgment of the child deals with the intellectual development of cooperative concepts. According to him, this development occurs in two stages. During the first stage, which lasts until about ages 6 to 9, the child's morality is based on unilateral respect for adult authority. The child views laws and rules as external absolutes and as external authoritarian demands. Having undergone intellectual growth and social experience, the child enters the second stage in which his morality is based on mutual respect and solidarity that develops with his peers. Rules and norms are viewed as logical principles of justice reflecting reciprocity and equality among individuals.

Piaget's findings support his theoretical position that this moral development occurs regardless of a child's nationality, social class, or culture. However, Kohlberg (3) found that while moral judgment does appear to develop in the same pattern regardless of social group, moral conduct develops in line with specific social class and peer group norms.

In light of Piaget's theory, it is reasonable to expect older children to be more cooperative due to their greater experience with the solution of peer

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conflict and with the ideas of reciprocity and equality. However, the majority of the studies in this area have shown the opposite finding. Older children are reported to behave more competitively and less cooperatively than younger children.

McClintock and Nuttin (5) tested American and Flemish second, fourth, and sixth graders on a maximum difference game (a variation of the Prisoner's Dilemma Game). They found a linear increase with age in the number of competitive responses in both cultures, although the Americans were more competitive overall than the Flemish. Madsen (4) and Kagan and Madsen (2), using different experimental measures of competition, found an increase in competitive responses with an increase in age from 4- to 11-year-olds among American children. This developmental phenomenon is not necessarily a universal one, however. The tendency for children to behave more competitively as they grow older may be culturally bound, as suggested by Kohlberg (3). Madsen (4), for instance, did not find an increase in competition with 7- and 11-year-old Mexican rural children. Children who live in cultures that differentially emphasize competition should manifest different patterns of competitive motivation. As they age, children experience increasing contact with the norms of their culture through increased social experience. Thus, cultural differences should become more pronounced as a function of age.

The kibbutz is a communal setting with a unique system of collective education and cooperative child rearing.[1] Kibbutz children of ages 8 to 11 have been shown to behave more cooperatively than urban children in Israel (8, 9). The present study compared Israeli urban and kibbutz children on the development of competitiveness. Israeli city children were predicted to show an increase in competition with age, as found in other urban cultures. Kibbutz children were not expected to show any increase in competitiveness as they grow older.

Thus, young children of both cultures should behave cooperatively, while the older children should behave more in accordance with their culture—city children becoming competitive and kibbutz children remaining cooperative.

B. Method

1. *Subjects*

Ninety-six kibbutz children and 96 urban children, equally divided between the sexes, participated in the study. The kibbutz children were taken from

[1] An extended description and literature review of child rearing in the kibbutz and its relation to the development of cooperation and competition is available in mimeographed form from the author upon request.

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kindergartens and schools of 12 different kibbutzim. These kibbutzim were selected in such a way as to maximize representation of the kibbutz population in Israel. They varied in their political orientation, in size of population, and in number of years of existence.

The urban children were taken from three kindergartens and eight public schools in the city of Haifa. The schools were located in different areas of the city and included children from varied socioeconomic backgrounds, from upper-lower to upper-middle class. Over 95% of the city and kibbutz children were native Israelis. Each subcultural group included 24 children of each of the following age groups: 4-year-olds, 5-year-olds, 7- to 8-year-olds, and 10- to 11-year-olds.

2. *Apparatus*

The Marble Pull Game (4) used in this study is illustrated in Figure 1. This apparatus consisted of a rectangular wooden table, with an eyelet screwed into each end. Strings strung through these eyelets were connected to a two-part plastic weight, held together by a magnet. A marble was to be placed in the center of this weight. The game was so designed that when the weight was pulled to one end of the table, the marble would drop into a plastic pocket. However, when both strings were pulled simultaneously, the marble holder, held together by the magnet, broke apart and the marble rolled off into a slanted groove carved at the edges of the table. (The Marble Pull Game was chosen for this study because of its suitability for very young children.)

3. *Procedure*

Groups of two children of the same age, sex, and subculture played the experimental games. The pairs were selected at random from within their class. They were seated at the two ends of the Marble Pull table and were told that marbles that were dropped into their plastic pocket would be theirs "for keeps" or could be swapped for other prizes. *E* then demonstrated that by pulling the weight to one end of the table or to the other, the marble was delivered into the pockets.

Six marbles were placed on a tray and the *E* instructed the *S*s that they could play six times. Any of the six marbles that fell into one pocket would belong to the child sitting at that end of the table. Marbles dropped into the other pocket would belong to the other child. Marbles that did not drop into either pocket would be taken by *E*. They were not told that the weight would break apart if they pulled simultaneously.

The first marble was placed in the center of the weight. The children

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(S. C. E. R. T.)
Date 8/14

held their strings and the *E* told them to begin. If the marble fell into a pocket, *E* announced the name of the child who had earned it. If the weight broke apart and the marble rolled off, *E* put the marble in a side box. The weight was then placed back at the center of the table and a second marble was placed in the weight. This procedure was followed for the remaining trials.

After six trials, *E* conducted an informal interview. *Ss* were asked why they lost all (some) of the marbles and in what way could they play so that they would earn more marbles. The interview was followed by two "set" trials in which each *S* in turn was instructed to release his string and allow the other *S* to obtain a marble. Following the two "set" trials, six more trials —identical to the first six—were run.

Cooperation in this game involved pulling by one *S* and yielding by the other. Competition involved simultaneous pulling by both *Ss*, an act which resulted in a lost marble. The number of marbles earned by each pair on each block of six trials served as the measure of cooperation.

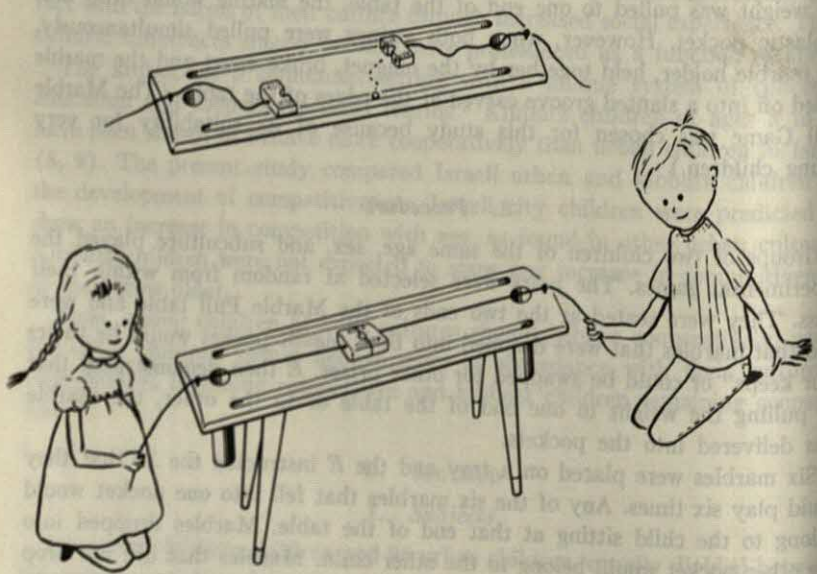

FIGURE 1
MARBLE PULL GAME

C. Results

Table 1 presents the mean number of marbles earned by kibbutz and urban pairs of four age groups on pre- and postset trials. Since no sex differences were found, results for boys and girls were collapsed.

A $2 \times 4 \times 2 \times 2$ (Culture $\times$ Age $\times$ Sex $\times$ Blocks of Trials) analysis of variance was performed. The first three factors were independent, while the Block of Trials was a within-*S* variable.

A significant overall Culture effect ($F = 12.18$, $df = 1/80$, $p < .001$) indicated that the kibbutz children earned more marbles (a mean of 4.4 out of the possible 6.0) than did urban children (mean of 3.1). Age was also found to be a highly significant factor ($F = 12.91$, $df = 3/80$, $p < .001$). An analysis of the individual age means by the Newman-Keuls method showed that 4-year-olds earned significantly ($p < .05$) more marbles than any of the three older age groups. The latter did not differ significantly among themselves.

A significant Age $\times$ Culture interaction ($F = 4.96$, $df = 3/80$, $p < .01$) indicated a different age pattern of competition for the two cultures. Both cultures were highly cooperative at age 4. While a sharp increase in competition occurred at age 5 in the city, it occurred only at the later age of 7- to 8-year-olds among kibbutz pairs. A trend towards a decrease in competitiveness was found among 10- to 11-year-olds. This trend was stronger among kibbutz than among city pairs.

The introduction of "set" caused a significant decrease in competitive responses ($F = 59.02$, $df = 1/80$, $p < .001$). The effect of set was stronger among older pairs (since the younger pairs were highly cooperative on the preset trials) and stronger among older kibbutz than among older city pairs. The 10- to 11-year-old kibbutz pairs showed the greatest decrease in competition, reaching maximum cooperation on the postset trials.

TABLE 1
Mean Number of Marbles Earned by Kibbutz and Urban Pairs of Four Ages On Pre- and Postset Trials
($N = 12$ pairs per cell)

	Culture				
	Urban		Kibbutz		
Age set	Preset (1-6)	Postset (7-12)	Preset (1-6)	Postset (7-12)	Total
4	5.4	5.9	4.9	5.6	5.4
5	1.6	2.8	5.4	5.5	3.9
7-8	.9	3.3	1.4	4.3	2.5
10-11	2.0	3.4	1.8	6.0	3.3
Total	2.5	3.9	3.4	5.4	3.8

D. Discussion

The findings of this study show once again an increase in competition with age. Since the only solution of the task required noncompetitive responses, 4-year-olds were more successful in reaching this adaptive solution and consistently earned more marbles than the older players. The great majority of the young players structured their play by taking turns.

While the 4-year-olds behaved most adaptively, they failed to show an intellectual understanding of the situation. When interviewed following the play, they could not provide adequate answers to the question of why they had (had not) earned marbles and how children should play as to always get marbles. Though these young children were definitely not competitive—i. e., did not pull one against the other—it cannot be said that they were cooperative in the "Piagetian" sense. From their answers and the observation of their behavior it did not seem that they reached a solution based upon reciprocity and equality but rather followed a rule of symmetry of going to one side first and then to the other. This behavior fits the "heteronomous" (external rule abiding) morality described by Piaget as typical of young children. Had the task required cooperative behavior which was not of the rhythmic turn-taking style, it is likely that young children would not have been so successful.

In contrast to the young children, the older children revealed competent intellectual ability to understand the experimental situation. Eighty percent of these *Ss* (ages 5 to 11) could describe the necessity of cooperative turn-taking as the only solution of the task. Thus, Piaget's developmental paradigm seems to hold for the intellectual comprehension of cooperation. Nevertheless, the older *Ss* were unable or unwilling to apply their intellectual conception to their actual behavior. The strength of the competitive motivation was overriding and therefore detrimental to the game situation.

The introduction of "set" led to a decrease in the degree of competitiveness among the older pairs. It seems that the set "legitimized" the use of cooperation and made it possible for some competing pairs to reach this solution. But, as can be seen from the results, city pairs still lost half their marbles on postset trials. This indicates that the difficulty in reaching an adaptive solution (at least for city children) is a function of two factors: First, perceiving the cooperative solution as a possible one; second, the execution of the cooperative solution once it is perceived as viable. Many pairs at this stage showed distrust of their peers. Although wishing to take turns

and earn marbles, neither *S* of a playing pair wished to be the first to yield and thereby take the risk of being "taken for a sucker."

As in previous studies on competition and cooperation, kibbutz children again showed overall less competitive behavior than did city children. The prediction that differences in competitiveness between kibbutz and city would increase with age was not confirmed. Four-year-olds of both cultures did not differ in their highly noncompetitive behavior. But in contrast to expectations, a similar pattern of an increase and later leveling of competitive behavior existed in both cultures. But the developmental pattern was not identical. While the sharp increase in competitive behavior occurred among city children at age 5, this development occurred later, at ages 7 to 8 among kibbutz children. Kibbutz 5-year-olds behaved very much like their younger peers. This result confirms other clinical findings (1, 7), indicating that until school age kibbutz children show some retardation in their development. In both subcultures the peak of competition was found among 7- to 8-year-olds. Both Israeli cultures did not show the further increase in competitiveness found by Madsen (4) among American children. It is possible that the 10- to 11-year-old Israelis are faced with social norms that do not fully encourage their newly adopted competitive behavior. If a recovery of cooperation or an inhibition of competition does occur at later ages, it seems to be stronger among kibbutz than among city children.

On the postset trials, kibbutz oldest children reached a maximum degree of cooperation, showing no competitive responses at all. Thus, once the viability of cooperation was perceived, kibbutz children had no difficulty in executing this kind of behavior.

It is also possible that the very high degree of cooperation on postset trials points to a tendency among kibbutz children to conform to the *E* who introduces a solution based upon the value of cooperation which is so socially desirable in the kibbutz society.

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INSTIGATORS AND INHIBITORS OF AGGRESSION IN A FIELD EXPERIMENT*[1]

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SUMMARY

The effects of an aggressive cue, level of frustration, and two dependency manipulations on subsequent aggression were studied in a field experiment. *Ss* were 320 men and women standing in line in supermarkets who saw the confederate (*C*) cut in line in front of them. *C* wore either a plain sweatshirt or one with "Drop Dead" stenciled on it, carried one or eight objects, used a crutch or not, and said "Please, I'm in a hurry" or not. Analyses of verbal, nonverbal, and total aggression indicated that *Ss* were more aggressive in the "Drop Dead" shirt, no crutch, and no hurry conditions, as predicted. No effect of sex or number of objects was found. The results suggest that aggressive cues can increase aggression, and dependency cues can inhibit it in a naturalistic setting.

A. INTRODUCTION

Although the number of social and environmental factors which have been proposed to influence aggressive behaviors in human beings is extremely extensive (2, 20, 32), the number of experimental paradigms used for investigating such variables has been far more limited. With few exceptions (15, 17, 18, 23, 24, 25, 30, 31) almost all the experimental social psychological research on aggression in adults has been conducted in laboratory situations, with the great majority of such studies utilizing purported delivery of electric shock to another as their dependent measure. Since concern has been expressed about the use of such contrived laboratory situations for measuring behaviors (43) and about the possibility that shocking another person in a laboratory situation may not be intended or viewed as an aggressive act by the *S* (14, 33), it seems reasonable to investigate whether the factors

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that influence the pulling of a lever purported to deliver shock in a laboratory situation also influence those verbal and nonverbal aggressive behaviors that can ethically be manipulated in a naturalistic setting.

One of the more intriguing and controversial findings in the literature on aggression is the report of Berkowitz and Le Page (12) that angered *Ss* who saw guns present in the laboratory delivered more electric shocks to a confederate than equally angered *Ss* who saw either no objects or neutral objects. The authors' interpretation of this result as due to the aggression-instigating effect of exposure to an aggressive cue has been criticized by Page and Scheidt, who view the results as due to "a complex interplay between sophistication, demand awareness and evaluation apprehension" (37, p. 304). On the basis of their attempts to replicate the weapons effect, they state that the so-called "aggressive behavior" found by Berkowitz and Le Page is an artifact and that in fact few *Ss* in such situations become angry, because they view it as only an experiment. Page and Scheidt conclude that "the weapons experiment is not evidence for the conditioning theory and cannot be generalized to nonlaboratory situations" (37, p. 304). Berkowitz (9) has criticized the Page and Scheidt critique, giving evidence for his belief that the demand characteristics of the experimental situation were not in fact responsible for the "weapons effect." More recently Turner and Simons (42) have suggested that sophistication and evaluation apprehension of *Ss* may mediate the "weapons effect." The present study attempted to investigate the idea that an aggressive cue not directed at the *S* would increase subsequent aggression of naive *Ss* in a naturalistic setting, by having *C* dressed in either a plain sweatshirt or one with the words "Drop Dead" stenciled on its front and back [The idea of having a gun or "_____ Gun Club" stenciled on it was rejected, because such a large percentage of Albuquerque citizens are gun owners and hunters that a possible feeling of similarity to and liking for the *E* might confound the results.].

A second factor investigated in the present study was the degree of frustration experienced by *S*, manipulated by having the *C* who cut in line in front of him carrying one or eight objects. Although the original frustration-aggression hypothesis proposed by Dollard, Doob, Miller, Mowrer, and Sears (16) and subsequently revised by Miller (36) and Sears (40) has been severely criticized for its inadequacy (1, 2, 7, 8), the fact of a generally positive correlation between degree of frustration and subsequent aggression has been widely accepted. It was assumed that it would take more time to wait on a person purchasing eight items than on a person purchasing only

one and that this greater anticipated delay of a goal-oriented response would be more frustrating than the lesser delay caused by a person with one object.

In addition to the voluminous research on instigators of aggression, a substantial amount of experimental research has been done on factors which can serve to inhibit aggression (1, 2, 20). Most of these studies have dealt with the effects of the direct or vicarious consequences of an *S*'s or a model's aggression (e.g., 3, 4) or of the quality and context of a model's aggressive behavior (e.g., 10, 21, 22), although a few have focused on such topics as the aggression-inhibiting influence of humor or sexual arousal (5, 6). Relatively little research, however, has been done on aggression-inhibiting characteristics of the potential victim other than his likelihood of retaliation or his pain cues, although several studies have found that high status *C*s (15, 17, 24) and female *C*s (24) receive less aggression than low status or male *C*s.

Although it has been suggested by some ethologists (35, 41) that dependency cues such as baring one's throat or sexual presenting may serve as innately determined inhibitors of aggression in other mammals and primates, a simple extension to humans is obviously unwarranted. Nevertheless, the fact that a number of studies have shown that dependency cues can increase altruism in people (e.g., 11, 13, 27, 29, 38, 39) suggests that they might affect other human social behaviors, such as aggression. Berkowitz and Daniels (11) have postulated the operation of a social responsibility norm, which is made more salient by dependency cues. If such a norm exists, one might expect that it would serve not only to increase altruistic behavior but also to inhibit aggression. Thus it was predicted that *S*s seeing *C* using a crutch and those hearing him say "Please, I'm in a hurry" would be significantly less aggressive than those in the other conditions. It was also expected that the "hurry" cue might be especially powerful in inhibiting aggression, since it was directed at the individual involved, unlike carrying a crutch. Latané and Darley (34), in fact, found that individuals were more helpful when a request for help was directed specifically to them than when it was directed to no one in particular. Finally, no specific predictions were made of any sex differences in aggressive behavior in light of the inconsistent findings of previous research (19, 23, 24, 25, 31).

B. Method

1. *Subjects, Experimenter, and Design*

*S*s were 160 men and 160 women who appeared to *C* to be between 18 and 60 years of age and who were standing third in line at 12 different supermarkets in Albuquerque. Approximately equal numbers of *S*s in each

condition were run at each location. Random assignment of *Ss* to conditions was approximated by deciding on experimental condition before checking to see who was in the appropriate place in line. Only people who were apparently outside the age limits, with another person, or of the wrong sex for the experimental condition were excluded as potential *Ss*. One *S*, who saw *C* get into another line at the same store, was excluded as an *S*. *C* was a graduate student in his late 20's.

The design of the study was a 2 (crutch or no crutch) × 2 (hurry or no hurry) × 2 ("Drop Dead" sweatshirt or plain sweatshirt) × 2 (8 objects or one object) × 2 (male or female *S*) factorial design, with 10 *Ss* in each of the 32 cells.

2. *Procedure*

The general procedure was the same for all conditions. *C* stepped in line in front of the appropriate person and coded his or her response, memorizing whatever *S* said and writing it down immediately after leaving the line. After *S* had responded or after approximately 20 seconds had passed without a response, *C* apologized and left the line. *Ss* who were obviously angry were given more profuse apologies and in some cases explanations of the study, after their response had been coded, of course. All lines were at least four persons long. In no case did *C* make eye contact with *S* or touch him in any way.

3. *Conditions*

In the crutch conditions, *C* carried and leaned on a crutch; in the no crutch conditions he did not. In the hurry conditions, he said "Please, I'm in a hurry" in a neutral tone of voice as he stepped into line; in the no hurry conditions he said nothing. In the "Drop Dead" shirt conditions, *C* wore a grey sweatshirt with the words "Drop Dead" stenciled in two inch letters on the front and back; in the plain shirt conditions he wore a sweatshirt which was identical except for the absence of lettering. At no time in any condition did he point to or look at his shirt. In the one object condition, *C* carried a box of Kleenex; in the eight object condition he carried a box of Kleenex, a frozen pizza, two cans of tuna fish, two cans of sardines, a can of soup, and a can of beans.

4. *Measures*

Immediately after leaving the line, *C* wrote down on a scoring card exactly what *S* said and did. He then coded *S*'s verbal behavior as polite, no response, somewhat aggressive (generally short, nonabusive remarks like "watch it,"

"this is my place," etc.) or very aggressive (threatening, abusive, or extended comments). The classification of response was based on tone of voice, as well as words, when it appeared to be on the borderline between somewhat aggressive and very aggressive. These responses were then transformed into numerical value for a subsequent analysis of variance by scoring very aggressive responses as +2 and somewhat aggressive responses as +1. Because many of the polite responses dealt with the topic of position in line ("Excuse me, but I'm afraid you may have gotten in the wrong place") and thus were somewhat assertive, it did not seem that they should be scored negatively as reflecting a behavior opposite to aggression; accordingly both polite and no responses were scored as zero.

Nonverbal responses were coded by having *C* check off those responses that occurred at least once; his score for nonverbal aggression was the sum of the separate scores. A glare, a push or shove, or an unfriendly, threatening, or obscene gesture was scored as +1 and considered an aggressive response; no response was scored as zero; and a smile or a friendly gesture beckoning to *S* to enter the line was scored as −1, indicating a behavior not just neutral but the opposite of aggressive. Some evidence for the assumption that these behaviors were truly opposite to the aggressive ones is the fact that only one of 320 *Ss* showed both an aggressive (a glare) and an unaggressive (friendly gesture) behavior. Scores thus could range from +3 (for *S* showing all three aggressive behaviors) to −2 (for an *S* showing both unaggressive behaviors). Finally, a total aggression score was formed by summing the verbal and nonverbal aggression scores.

A reliability check was performed by having a second observer, also a male graduate student, independently observe and code the behavior of 36 *Ss*. During the reliability check he stood unobtrusively about 20 feet away and coded *S*'s behavior without any discussion with *C*.

C. Results

1. *Reliability*

The interobserver reliability coefficients for the 36 *Ss* scored by both observers were .946 for verbal aggression, .960 for nonverbal aggression, and .972 for total aggression (all $ps < .001$, all $df = 34$).

2. *Amount of Aggressive Behaviors*

The mean scores of verbal and nonverbal responses for *Ss* in all 32 conditions are shown in Table 1. Five-way analyses of variance of verbal, nonverbal, and total responses indicated that *C* received significantly less verbal,

TABLE 1
MEAN VERBAL AND NONVERBAL AGGRESSION SCORES

Conditions	Crutch				No crutch			
	Hurry		No hurry		Hurry		No hurry	
	Verbal	Nonverbal	Verbal	Nonverbal	Verbal	Nonverbal	Verbal	Nonverbal
"Drop Dead" shirt								
8 objects								
Male	.3	−.2	.4	.4	.7	1.1	.2	.2
Female	.2	−.5	.3	.3	.4	−.2	.8	1.3
1 object								
Male	.2	−.5	.2	0.0	.2	−.1	1.0	1.4
Female	.2	0.0	.2	.6	.2	−.2	.7	.7
Plain shirt								
8 objects								
Male	.1	−.8	.3	.2	.2	−.4	.4	.5
Female	.2	−.6	.2	.3	.3	−.5	.2	.3
1 object								
Male	.2	−.5	.4	.3	.1	−.8	.2	.3
Female	0.0	−1.2	.2	−.1	.1	−.4	.2	.1

nonverbal, and total aggression when he was using a crutch than when he was not ($F_{\text{verbal}} = 6.603$, $df = 1/288$, $p < .05$; $F_{\text{nonverbal}} = 13.835$, $df = 1/288$, $p < .001$; $F_{\text{total}} = 13.512$, $df = 1/288$, $p < .001$). Similarly, he received significantly less verbal, nonverbal, and total aggression when he said "Please, I'm in a hurry" than when he did not ($F_{\text{verbal}} = 6.603$, $df = 1/288$, $p < .05$; $F_{\text{nonverbal}} = 70.041$, $df = 1/288$, $p < .001$; $F_{\text{total}} = 48.066$, $df = 1/288$, $p < .001$). *C* also received significantly more verbal, nonverbal, and total aggression when wearing a shirt saying "Drop Dead" than when wearing a plain one ($F_{\text{verbal}} = 10.498$, $df = 1/288$, $p < .01$; $F_{\text{nonverbal}} = 25.482$, $df = 1/288$, $p < .001$; $F_{\text{total}} = 23.869$, $df = 1/288$, $p < .001$). A two-way interaction indicated that for both verbal and total aggression the increase in aggressiveness against *C* wearing a "Drop Dead" shirt compared with a plain shirt was far greater for *Ss* in the no crutch conditions, as if carrying a crutch somehow moderated the effect of the aggressive cue ($F_{\text{verbal}} = 5.505$, $df = 1/288$, $p < .05$; $F_{\text{total}} = 4.782$, $df = 1/288$, $p < .05$). A three-way interaction indicated that when *C* carried eight objects, male *Ss* showed more nonverbal aggression than females if *C* said he was in a hurry and less than females if *C* said he was not in a hurry; when *C* carried one object, males and females did not differ if he was in a hurry, but males were more nonverbally aggressive to *C* if he did not say he was in a hurry than were females ($F = 4.518$, $df = 1/288$, $p < .05$). Finally, three four-way interactions were significant on the measures of nonverbal and total aggression, but the meaning of all three remains obscure to the author. No other effects were statistically significant. When the Bonferroni critical value procedure for controlling experiment-wise error rate is used, the crutch by dress interaction measured by total aggression, and one four-way interaction measured by nonverbal and total aggression would no longer be statistically significant at the $p < .05$ level. All other effects would be statistically significant by the Bonferroni procedure, as well as by the conventional univariate tests.

3. *Frequency of Aggression*

Chi-square analyses, all using Yates' correction for continuity, of the percentages of people demonstrating some aggressive behavior revealed the same trends as the analyses of variance but with lower levels of statistical significance. Overall, 26.9% of the *Ss* showed verbal aggression, 27.2% showed nonverbal aggression, and 32.5% showed some aggression of one or the other type. The difference in percentages of people in the crutch (31.3%) and no crutch (22.5%) conditions who showed verbal aggression was not significant ($\chi^2 = 2.687$, $df = 1$, $p > .05$). Nor was the difference between those in the

hurry (21.9%) and no hurry (31.9%) conditions ($\chi^2 = 3.578$, $df = 1$, $p > .05$), although the χ^2 computed without Yates' correction (4.071) would have been. Significantly more people showed verbal aggression to *C* wearing the "Drop Dead" shirt (35%) than in the plain shirt (18.8%) conditions ($\chi^2 = 9.938$, $df = 1$, $p < .01$). Differences between males and females ($\chi^2 < 1$) or between those seeing *C* carry one or eight objects ($\chi^2 = 1.115$) were nowhere near statistically significant.

Analyses of nonverbal responses indicated that more people in the no crutch conditions (33.1%) than in the crutch conditions (21.3%) aggressively gestured, glared, or shoved *S* ($\chi^2 = 5.115$, $df = 1$, $p < .05$). Similarly, a higher percentage of *Ss* in the no hurry (34.4%) than in the hurry (20.0%) conditions were aggressive ($\chi^2 = 7.641$, $df = 1$, $p < .01$). Similarly, more people who saw *C* wearing the "Drop Dead" sweatshirt (36.9%) than who saw him in the plain sweatshirt (17.5%) showed nonverbal aggression ($\chi^2 = 14.211$, $df = 1$, $p < .001$). The differences between males and females ($\chi^2 < 1$) and between those seeing *C* carrying one or eight objects ($\chi^2 = 1.724$) did not approach significance.

Analyses of the number of people showing either kind of aggression indicated that the percentage of aggressive people in the crutch conditions (27.5%) was not significantly lower than the percentage in the no crutch (37.5%) conditions ($\chi^2 = 3.205$, $df = 1$, $p > .05$). Significantly more *Ss* in the no hurry (39.4%) than in the hurry conditions (25.6%) showed aggressive behavior ($\chi^2 = 6.282$, $df = 1$, $p < .05$), as did significantly more people in the "Drop Dead" shirt (40.6%) than in the plain shirt (24.4%) conditions ($\chi^2 = 8.903$, $df = 1$, $p < .01$). As with the other measures, no differences approaching statistical significance were found between males and females ($\chi^2 < 1$) or between those seeing *C* carry one or eight objects ($\chi^2 = 1.724$).

4. *Non-Aggressive Verbal Behavior*

Of those *Ss* who showed no verbal aggression, 67.5% gave no response and 32.5% made a polite remark. The percentages of *Ss* who made no response were almost identical for those in the crutch and no crutch conditions, the plain shirt and "Drop Dead" shirt conditions, the eight object and one object conditions, and for males and females (all χ^2s < 1). However, far more nonaggressive *Ss* in the hurry condition (51.2%) than in the no hurry condition (11.0%) made a polite remark to *S* instead of no response ($\chi^2 = 41.074$, $df = 1$, $p < .001$).

D. Discussion

The findings appear to confirm the belief of Berkowitz and Le Page (12) that the presence of an irrelevant aggressive cue can increase aggressive behavior, since more *S*s who saw *C* wearing the "Drop Dead" sweatshirt were aggressive and their overall levels of verbal, nonverbal, and total aggression were higher than for those in the plain shirt condition. They also suggest that Page and Scheidt (37) are mistaken in concluding that such effects are found only in a laboratory situation with sophisticated *S*s and indicated the feasibility and value of studying such topics in a field situation.

Both dependency cues, the use of a crutch and saying "Please, I'm in a hurry," appeared to reduce significantly the level of aggressive behavior displayed by *S*s, although the percentages of *S*s showing aggressive behavior were not statistically significantly lower for the crutch condition on the measures of verbal and total aggression or for the hurry condition on the measure of verbal aggression. Such dependency cues may serve to remind the *S* of the social responsibility norm and thus cause him to be less aggressive, as well as more helpful to the *S*. The "Please, I'm in a hurry" remark had an additional effect on *S*s; it induced a much larger percentage of those who were not being aggressive to respond by politely commenting to *C* rather than ignoring him. A similar effect of the phrase "Excuse me" was found in a previous study (24).

It appears that modeling of verbal behavior might lead an observer to imitate not only the linguistic behavior modeled (28) or the actual language spoken (26) but also the choice of a verbal mode of responding. The result of lesser aggression after "Please, I'm in a hurry" or "Excuse me" (24) could, of course, be interpreted as due to the fact that something was said to *S*, rather than to the specific content of the utterance. Such a possibility seems highly unlikely, however, as one would certainly expect an aggressive remark and possibly even a neutral one to increase the *S*'s hostility, and it is obviously contrary to the beliefs of the college committee which reviews research on human *S*s, who cautioned the researcher to be sure that *C* did not address any remarks to *S*, as they feared that any comment might "set him off."

The fact that the number of objects had no effect on aggression suggests two explanations: that the difference in perceived frustration value between one and eight objects is very slight or that the larger number of objects implied more dependency, thus counteracting the effects of frustration. In the present study, the use of more than eight objects was impossible, due to the

difficulty of balancing more than eight objects and a crutch, but these two alternative explanations should prove testable in future research.

The lack of sex differences is not surprising, given the somewhat contradictory nature of the literature (19) although a previous study (24) had found a higher percentage of females were aggressive and that females showed more nonverbal aggression but that males showed higher levels of verbal and total aggression and were definitely more aggressive to male *Cs*.

The results of field experiments like the present one can serve to confirm, contradict, or extend the findings of laboratory research on aggression. It appears that aggressive cues not directed at *S* can increase his level of aggressiveness and that dependency cues either directed to him ("Please, I'm in a hurry") or not (the crutch) can serve to inhibit his aggressive responding. A knowledge of factors which instigate people to behave aggressively in naturalistic settings and particularly of factors which might inhibit this aggressiveness would be of great value to social psychologists and laymen alike.

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SOME FACTORS INFLUENCING HELPING: THE EFFECTS OF A HANDICAP, RESPONSIBILITY, AND REQUESTING HELP*

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SUMMARY

The effects of the severity of a handicap, *S*'s responsibility for the confederate's (C) condition, a request for help, and sex of *S* were tested with 120 adult Anglo-American males and females in a shopping center. As predicted, *Ss* who saw the *C* with a bandage around his forearm helped him pick up more envelopes than those who saw him with an eyepatch and facial scar ($p < .05$), and more people helped the *C* pick up envelopes in the bandage condition than in either the scar or a no handicap control condition ($p < .01$). *Ss* who were led to feel responsible for the *C*'s dropping the envelopes gave more help, as predicted ($p < .05$), as did male *Ss* ($p < .05$), but a request for help had no apparent effect. The results were consistent with a theory that any handicap increases sympathy for a person but that a disfiguring one also reduces his attractiveness, with helping decreasing as the severity of the handicap increases.

A. INTRODUCTION

The literature on helping behavior has generally suggested that greater need on the part of the person being helped (e.g., 9) and greater sympathy for him (e.g., 12) will increase the amount of help he is given. Although one might expect a handicapped person to be viewed with more sympathy than a nonhandicapped one (5, 11), studies looking at the effect of physical handicaps have generally found that in a face-to-face situation, *Ss* are no more likely to help a handicapped than a nonhandicapped person (5, 16) and may even help a person with a knee brace and arm sling less than one who appears completely normal (14). One explanation of these findings is the suggestion that a physical handicap may serve as a mark of stigma (7) and reduce the attractiveness of the individual who is disabled (14), making interaction with

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[1] Facilities for typing and duplicating this manuscript were provided to the second author by The Ohio State University.

him unpleasant; however, if helping entails no further interaction, then increased sympathy may lead *Ss* to be more willing to help a stigmatized person rather than less (5).

The present study attempted to test the hypothesis that both mild and severe handicaps will increase sympathy for a person but that a disfiguring handicap will also decrease the attractiveness of the individual and thus will lead to less help than that given to an individual with only a mild handicap. In order to hold the actual need of the person constant, neither of the handicaps used interfered with the *C*'s task of picking up a large number of envelopes he had spilled. One group of *Ss* saw the *C* wearing an eyepatch and unattractive facial scar (disfiguring handicap), one group saw him with a bandage around his forearm (mild handicap), and those in the control group saw him with neither eyepatch and scar nor bandage. It was predicted that the decreased attractiveness of the disfiguring handicap would lead to less help by *Ss* in that group than by those in the neutral handicap group.

A second factor which has been shown to affect altruism is the *S*'s responsibility for the needy person's condition. A number of studies have shown that a person who has apparently harmed another will be more likely to help someone than one who merely sees another person in need of help (e.g., 15) although Konečni (12) found that those who see a person harmed but not helped by another may help even more than those who harm the individual themselves. In the present study an attempt was made to attribute the responsibility for spilling the *C*'s envelopes to the *C* himself or to the *S*, to see whether the *Ss* would indeed help more in this situation if they were led to feel responsible.

A third variable to be considered is whether or not the *C* actually requests help from the *S*. Studies of bystander intervention in emergencies have suggested that a request for help makes subsequent helping more likely (4, 17), which has been attributed to the fact that a cry for help may reduce the ambiguity about the seriousness of the situation or the appropriate response for the *S* to make. If this is so, it should be the case that in a nonambiguous nonemergency situation, a request for help should have little or no effect on the *S*'s behavior. On the other hand, it is possible that any request for help increases the social pressure on *Ss* to help by making clear what behavior is expected of him, and thus would increase helping regardless of the ambiguity or emergency nature of the situation. Alternatively, it might be the case that a request for help would increase the reactance of the *S* (2, 10) and thus reduce the chances that he would help; Fraser and Fugitomi (6, p. 248) have

suggested in fact that "Circumstances which are likely to elicit higher levels of reactance in an individual may result in . . . decreased rates of altruistic compliance."

Finally, the effect of sex of the *S* has also been investigated in this and previous studies. Although results of other research have not been completely consistent, the majority of studies either indicate no sex differences (e.g., 8), find greater amounts of cross-sex helping (e.g., 1), or find that males help more than females (e.g., 3, 13, 14). Although picking up envelopes is certainly an act that could be performed equally easily by men or women, the results of previous research, as well as social norms prohibiting women from giving physical help to men, would suggest that men should help more in this situation than women.

B. Method

1. *Subjects and Design*

*S*s were 60 male and 60 female adults in shopping centers in Albuquerque, New Mexico, who were apparently over 18 years of age, Anglo-American, unhandicapped, alone, and not carrying packages. The only potential *S*'s with these characteristics who were not used were those who approached *C* while he was running another *S* or who were of the wrong sex for the condition being run. The *C* was a male graduate student in his twenties dressed in a short-sleeved shirt and slacks and carrying a stack of 50 envelopes. The design was a 3 (handicap) $\times$ 2 (responsibility) $\times$ 2 (request) $\times$ 2 (sex of *S*), factorial design with five *S*s per cell.

2. *Handicap*

In the disfiguring condition, *C* wore an eyepatch and had a 3-½ inch theatrical scar running from his cheekbone to just above the jaw. The scar was unattractive but not grotesque. In the neutral handicap condition, *C* wore a bandage wrapped around his forearm, which did not touch his wrist or elbow and apparently did not interfere with his ability to use his arm. In the control condition, *C* wore neither eyepatch and scar nor bandage.

3. *Procedure*

The *C* waited until a potential *S* was walking toward him and then walked slowly toward *S* while not looking directly at him. As they neared each other, *C* either brushed lightly into *S* (in the *S*-responsible condition) or merely dropped the envelopes when *S* was about a foot to his right (*S*-not respon-

sible). In the responsible condition the *C* stated in a neutral, nonantagonistic tone of voice, "You've made me drop my envelopes." In the not responsible condition, *C* stated in the same tone of voice "I've dropped my envelopes." The *C* then bent down to pick up the envelopes, saying to *Ss* in the request condition, "Can you help me pick these up?" Nothing was said to *Ss* in the no request condition.

In all conditions *C* picked up the envelopes at a slow and steady pace, keeping count of the number he picked up. Whether or not *Ss* picked up at least one envelope, and the number of envelopes actually picked up by *S* served as the dependent variable.

C. Results

Table 1 presents the mean number of envelopes picked up by *Ss* in the various conditions. A $3 \times 2 \times 2 \times 2$ analysis of variance indicated a significant handicap effect ($F = 4.25$, $df = 2/96$, $p < .05$). *Post hoc* Scheffé comparisons revealed that the *Ss* in the neutral handicap group ($\overline{X} = 14.4$) helped *C* significantly more than those in the disfiguring handicap group ($\overline{X} = 6.9$; $F = 7.03$, $df = 1/96$, $p < .05$) and nonsignificantly more than those in the control group ($\overline{X} = 7.7$; $F = 5.57$), which did not differ from the disfiguring handicap group ($F < 1$).

Ss in the responsible condition picked up more envelopes ($\overline{X} = 12.7$) than those in the not responsible condition ($\overline{X} = 6.7$; $F = 6.69$, $df = 1/96$, $p < .05$), but those in the request and no request conditions did not differ ($F < 1$). Male *Ss* picked up significantly more envelopes ($X = 12.6$) than did females ($\overline{X} = 6.8$; $F = 6.25$, $df = 1/96$, $p < .05$), but there were no statistically significant interactions (largest $F = 2.93$, $df = 1/96$).

Chi square analyses of the number of people who helped revealed a significant handicap effect, with 27.5% of the *Ss* in the control condition,

TABLE 1
MEAN NUMBER OF ENVELOPES PICKED UP BY *S*

Condition	Control		Neutral handicap		Disfiguring handicap	
	Male	Female	Male	Female	Male	Female
Responsible						
Request	18.0	3.8	21.8	5.2	4.4	9.4
No request	11.0	5.8	28.4	22.0	11.6	10.0
Not responsible						
Request	8.6	6.0	13.8	8.0	9.4	4.6
No request	7.6	0.0	9.6	6.6	6.6	0.0

65% in the neutral handicap condition, and 27.5% in the disfiguring handicap conditions helping *C* to pick up envelopes ($\chi^2 = 15.63$, $df = 2$, $p < .01$). Significantly more people in the neutral handicap condition helped (both χ^2s with Yates' correction $= 9.85$, $df = 1$, $p < .01$). The difference in percentages of helpful *S*s in the responsible (51.7%) and not responsible (28.3%) conditions was also significant ($\chi^2 = 5.87$, $df = 1$, $p < .05$). However, there were no significant differences between males and females or those in the request and no request conditions (χ^2s $= 1.70$ and < 1, respectively, $df = 1$, $p < .05$).

D. Discussion

The findings suggest that *S*s with a mild handicap are helped more and by more people than those with a disfiguring handicap in a nonemergency situation. They were also helped by more people than were control *S*s, although the actual number of envelopes picked up was not significantly greater. This latter tendency for more people to help a mildly handicapped person than a nonhandicapped one in a face-to-face situation is not consistent with the results of Doob and Ecker (5), Test and Bryan (16), and Pomazal and Clore (14), but this may be due to the fact that their handicaps (eyepatch, arm in sling with a splint on a finger, and knee brace and arm sling) were more severe than in the neutral handicap condition of the present study and equivalent to those in the disfiguring handicap condition. It thus appears that there are two components of reactions to helping a handicapped person: sympathy, which would tend to increase helping, and a desire to avoid the individual because of repugnance or his decreased degree of attractiveness, which serves to reduce the amount of helping in a situation where interaction with the handicapped individual is required (5). Kleck, Ono, and Hastorf (11), for instance, found that *S*s terminated an interview with a handicapped interviewer sooner than one with a normal interviewer. In the present study, sympathy may have increased helping in the neutral handicap group, but the tendency to avoid the handicapped person may have counteracted the effect of increased sympathy for the *S*s in the disfiguring handicap condition.

A second effect found in this study was that *S*s made to feel responsible for their act were in fact more helpful than those not made to feel responsible. Although this is consistent with the results of previous research (e.g., 12, 15), it is important to note that *S*s were not in fact responsible and need not have taken the *C*'s attribution of responsibility to them as valid. Perhaps the statement "You made me drop my cards" served as an effective implicit request for help; however, an explicit request for help did not have any influ-

ence on the *S*'s behavior. In the nonemergency situation, the explicit request may have made the social pressure to help more salient but also have increased the reactance felt by the *S*. The combination of the two may have led to no overall effect. However, it seems very unlikely that the *S* failed to hear the request, since the responsibility manipulation did have some effect. Moreover, if reactance were really operating, one might expect it to be strongest in the request-responsible condition; although the pattern of scores was in this direction, the interaction was not significant.

The findings that males helped more than females is consistent with some previous research and inconsistent with Bickman's (1) suggestion of greater cross-sex helping. Males helped the male *S* more, not because the task was objectively easier for them, but probably because it is viewed as inappropriate for a woman to help a man pick up packages. It is also possible that female *S*s could have viewed the dropping of the envelopes as a ploy by the *C* to get their attention (the fact that male helpers in the Bryan and Test (3) and Pomazal and Clore (14) studies seemed partly motivated by a desire to "pick up" the female *C*s makes this interpretation not unreasonable.)

The results of the present study suggest that a simple description of a person as handicapped or not will not be sufficient to predict an *S*'s reactions to him. The degree to which a handicap is disfiguring, the degree to which it is disabling, its permanent or temporary nature, its rarity or commonness are likely all to have effects on people's reactions, along with such factors as whether it is viewed as possibly contagious and whether the person himself is viewed as responsible for it.

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THE EFFECTS OF ETHNICITY OF SUBJECT AND ACCENT AND DEPENDENCY OF CONFEDERATE ON AGGRESSIVENESS AND ALTRUISM*

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SUMMARY

In order to assess the effects of the accent and need of a caller upon the aggressiveness and helpfulness of Spanish-surnamed and Anglo-surnamed *Ss*, 96 male and female persons picked at random from the telephone book were called by someone who wanted to speak to a pharmacy and who had apparently reached a wrong number. Need of the caller and surname of the *S* were not directly related to aggressiveness, but Spanish-surnamed *Ss* were less aggressive to a desperate confederate (*C*) and Anglo *Ss* to a nondesperate *C*. There was also a tendency for *Ss* to be more aggressive toward a caller with a Spanish accent and to become less aggressive to Anglo callers as the call progressed. No sex differences on any measures were found, but more women in the Spanish surnamed households and more men in the Anglo households answered the phone. Moreover, Anglo-surnamed individuals requested to look up a phone number were more likely to comply with the caller's request than Spanish-surnamed individuals.

A. INTRODUCTION

Although there have been a number of studies that have attempted to assess ethnic and racial differences in responses to stimuli eliciting aggressive and altruistic behavior, very few of these studies have looked at differences between Anglos and Chicanos or have been conducted in a field situation. Harris, Liguori, and Stack (7), in a field experiment, found no overall differences in altruism between Chicanos and Anglos, but Chicanos were apparently more sensitive to a reciprocity norm than Anglos. Studies using a wrong number technique similar to the one in the present investigation have examined differences in helping between blacks and whites (3) and political conservatives and liberals (2); a similar paradigm found no significant differences in aggressive behavior over the telephone between Anglo and

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Chicano *Ss*, although the Chicanos were nonsignificantly more aggressive on all measures (4).

In addition to looking at ethnic differences in both aggressive and altruistic responses to a telephone call, the present study also varied the accent of the caller. A number of Chicanos in New Mexico have suggested that there may be some discrimination against and antagonism towards people who speak English with a Spanish accent; in fact, until very recently, school teachers were urged to eradicate any trace of a Spanish accent among their students. If this is the case, one might expect a greater level of aggressiveness and less helpfulness to a Spanish-surnamed caller who speaks with a Spanish accent than to one with an Anglo accent. On the other hand, Harris and Baudin (6) found that Chicano *Ss* helped a Spanish-surnamed confederate (*C*) who spoke Spanish more than one who spoke English, suggesting that the language may have increased the *Ss* empathy towards the *C*. One might predict that a Spanish accent for Spanish-surnamed *Ss* would have the same effect; if that were the case, an interaction would be expected so that Anglos would be more aggressive and less helpful to a caller with a Spanish accent and Spanish-surnamed *Ss* would be more aggressive and less helpful to callers with an Anglo accent.

A final independent variable studied was the extent of the caller's need or dependency, manipulated by inserting an "I'm really desperate" into the script. A number of studies have postulated (e.g., 1), and found, even with the wrong number technique (e.g., 9) that greater levels of dependency increase helping; however, it has also been suggested that greater dependency may increase either the costs of helping (10) or reactance (8) and thus decrease helping. It has also been shown (5) that dependency cues may serve to decrease aggressiveness. However, no previous research has looked at the interaction of a dependency cue and ethnic background of the *Ss* to see whether Anglos and Chicanos might differ in their responses to a dependency cue.

B. Method

1. *Subjects and Confederates*

Ss were 37 male and 59 female adults who answered the telephone between the hours of 9:30 a.m. and 8:30 p.m. on weekends and 6:00 to 8:30 p.m. on weekdays. The numbers to be called were randomly selected from the telephone book, so that 48 of them were listed under an unequivocally Spanish surname and 48 under an unequivocally Anglo surname. There was thus no proof that *Ss* actually were Spanish surnamed or Anglo surnamed; however

C's evaluations of *S*'s accents were in very close agreement with the surnames, with all Anglo surnamed *S*s having apparently Anglo accents and all but six Spanish-surnamed *S*s having apparently Spanish accents.

The *C*s were both females in their late twenties who were both bilingual in English and Spanish and capable of manipulating their voices to speak English with or without a pronounced Chicano accent. Each *C* called six *S*s in each of the eight conditions.

2. *Design*

Calls were made with a Spanish or Anglo accent to Spanish-surnamed or Anglo-surnamed *S*s with the phrase "I'm really desperate" inserted or not; the design was thus a $2 \times 2 \times 2$ factorial design with 12 *S*s per cell.

3. *Procedure*

After randomly selecting the number to be called and hearing an adult voice answer the phone, *C* began to speak from a prearranged script. The statements in the Anglo and Chicano accent conditions were identical in wording and emotional tone, but differed in the pronunciation and accenting of certain words and syllables. The script began: "Hello, Bellas Hess Pharmacy? This is Carmen Duran and I need to get a prescription refilled." In the desperate conditions the phrase "I'm really desperate!" was added. If *S* attempted to interrupt during this sentence, *C* simply continued speaking a little louder and ignored the interruption. After *S*'s response, *C* next said, in an irritated tone of voice, "Are you trying to tell me this isn't Bellas Hess Pharmacy?" Regardless of *S*'s response, C continued with "What number is this, anyway," again sounding irritated. Finally, after *S*'s answer to this comment, *C* remarked, "Look, I don't have a phone book. Could you look up the number of Bellas Hess Pharmacy for me?" Regardless of whether *S* looked up the number or not, *C* thanked him profusely and apologized for the inconvenience.

4. *Scoring*

Individual data sheets were filled out on each *S* as the call was being made. *S*'s apparent accent and sex were recorded, along with the exact comments he made to *C*'s four remarks. The length of the call to the nearest five seconds, whether and at what point *S* hung up, and whether he looked up the number or refused to do so were also recorded. Finally, a seven-point scale ranging from 1 extremely polite to 7 extremely aggressive was used to record *S*'s tone of voice at the beginning and at the end of the call, his comments, and *C*'s overall impression of *S*.

The first 14 calls served as an interobserver reliability check. One *C* would make a call and score it; at the same time the second *C* listened on a telephone extension and independently scored the call.

C. Results

1. *Reliability*

The scorers agreed perfectly on rating *S*'s sex, accent, hanging up, agreeing to look up the number, and length of call. Pearson product-moment correlations between the two independent ratings were .935 for tone of voice at the beginning of the call, .908 for tone of voice at the end of the call, .891 for comments, and .950 for overall impression, all highly significant ($df = 12$, $p < .01$). Since the reliability was so high and since visual inspection revealed almost identical scores for the two *C*s, data from the *C*s were combined for all analyses.

2. *Sex*

A significantly larger percentage of *S*s who answered the phone in Anglo households (70.3%) than in Spanish-surnamed households (22.9%) were male ($\chi^2 = 15.575$, $df = 1$, $p < .001$). No significant differences were found between male and female *S*s in the number of *S*s hanging up or looking up the number, in the length of the call, tone of voice at the beginning or end, *S*'s comments or *C*'s overall impression of *S*. Because of the lack of near significant differences and the fact that a previous study using a similar wrong number paradigm had also failed to find sex differences (4), the data were combined across males and females for all further analyses.

3. *Helping*

Chi square analyses, all using Yates' correction, of those *S*s who were asked to look up the number (i.e., excluding those who had previously hung up) indicated that a higher percentage of Anglo-surnamed *S*s (97.3%) than of Spanish-surnamed *S*s (76.7%) actually looked up the number ($\chi^2 = 5.4568$, $df = 1$, $p < .05$). However, there were no differences in percentages looking up the number between those hearing a desperate or nondesperate *C*. If those who hung up are included in the analysis, then the percentages of people with Spanish and Anglo surnames, hearing a *C* with a Spanish (64.6%) or Anglo (79.2%) accent or hearing a desperate or nondesperate *C* did not differ.

4. *Aggression*

There was a tendency for people to be more likely to hang up on a *C* with a Spanish (25.0%) accent than on a *C* with an Anglo (8.3%) accent ($\chi^2 = 3.675$, $df = 1$, $p < .10$). The difference in hanging up between Anglo-surnamed (22.9%) and Spanish-surnamed (10.4%) *S*s was nonsignificant, and identical percentages hearing a desperate and nondesperate (16.7%) *C* hung up.

Five $2 \times 2 \times 2 \times 2$ analyses of variance were performed on the variables of length of the call, tone of voice at the beginning, tone of voice at the end, comments, and overall impression. The main effects of surname of *S* and desperateness of *C* never approached statistical significance. There were nonsignificant tendencies, however, for *S*s addressed by a caller with a Spanish accent to have a shorter call ($\bar{X} = 52.08$ seconds *vs.* 61.25 seconds; $F = 3.699$, $df = 1/88$, $p < .10$), a more aggressive tone of voice at the beginning ($\bar{X} = 4.291$ *vs.* 3.930; $F = 2.153$, $df = 1/88$, $p > .10$) and end ($\bar{X} = 4.271$ *vs.* 3.680; $F = 3.157$, $df = 1/88$, $p < .10$) of the conversation, and to produce more aggressive comments ($\bar{X} = 4.437$ *vs.* 3.950; $F = 3.554$, $df = 1/88$, $p < .10$); they were rated as significantly more aggressive overall ($\bar{X} = 4.437$) than those hearing a *C* with an Anglo accent ($\bar{X} = 3.870$; $F = 4.007$, $df = 1/88$, $p < .05$).

On all the variables except length, a significant interaction between dependency of *C* and surname of *S* was found, indicating that Spanish-surnamed *S*s hearing a nondesperate caller and Anglo-surnamed *S*s hearing a desperate caller were more aggressive than *S*s in the other two groups (for tone of voice at beginning and end, comments, and overall impression, respectively, Fs $= 10.195$, 4.305, 12.424, and 8.361, all $df = 1/88$, $p < .01$, $p < .05$, $p < .001$, and $p < .01$). Two three-way interactions (A $\times$ S $\times$ D) were also significant for the measures of comments ($F = 4.899$, $df = 1/88$, $p < .05$) and overall impression ($F = 4.0074$, $df = 1/88$, $p < .05$), indicating that *S*s in the Spanish accent-desperate-Anglo surname group were more aggressive than those in all the other conditions. No other results of the analyses of variance were statistically significant.

A final set of analyses was performed on the changes in rated tone of voice from the beginning to the end of the study. Overall, 32.3% of the *S*s became less aggressive, 11.4% became more aggressive, and 56.3% apparently stayed the same. Of those changing, significantly more showed a decrease in aggressiveness than an increase ($\chi^2 = 8.595$, $df = 1$, $p < .01$). Moreover,

all those *Ss* who became more aggressiveness were in the Spanish accent condition, a result significantly different from chance ($\chi^2 = 12.473$, $df = 2$, $p < .01$). The percentages of Anglo-surnamed and Spanish-surnamed *Ss* or those hearing a desperate or nondesperate *C* who changed their tone of voice were not significantly different.

D. Discussion

The results of this study not only lend some support to the idea that prejudice against people with Spanish accents does exist but provide none at all to the idea that Spanish-surnamed *Ss* would be less aggressive and more helpful to someone with a Spanish accent. The fact that Anglo-surnamed *Ss* were less aggressive to a nondesperate caller and more aggressive to a desperate caller than Spanish-surnamed *Ss*, who showed just the reverse tendency, might be due to a tendency for Anglo *Ss* to be more polite to normative small requests or interruptions, which also explains why they are more likely to grant a request to look up a telephone number. However, when someone states that she is desperate, Anglo *Ss* may experience greater reactance than Chicano *Ss*, who may feel less normative pressure to help or be polite to a stranger but become more sympathetic and less aggressive if a stranger professes high need. Obviously further research will be necessary to test these hypotheses.

The finding that in Anglo households a man is more likely to answer the phone whereas in Chicano households a woman is more likely to answer the phone is congruent with the traditional role of the Chicano woman, which is to care for the home and to protect the man from petty annoyances, like having to answer the telephone. This difference in percentage of male and female *Ss* answering the telephone in Chicano and Anglo households leads to a partial confounding of sex differences and ethnic differences. However, the fact that the means and frequencies for men and women were very similar, leading to nonsignificant differences between them, together with the results of a previous study (4), suggests that sex differences were truly nonexistent.

A second problem in interpreting *S* differences is that *Ss* were identified only by the surname listed in the telephone book rather than by direct assessment of their own surname or ethnicity. However, the fact that all the Anglo-surnamed *Ss* appeared to the *Cs* to have Anglo accents and all but six of the Spanish-surnamed *Ss* appeared to have Spanish accents suggests that very few were misidentified.

The finding that *Ss* apparently were more polite at the end of the call

than the beginning seems to contradict the results of Harris (4), in which *Ss* became more aggressive as a call continued. According to the *Cs*, the *Ss* appeared to become angrier until the request to look up the number, whereupon most of them looked up the number and sounded much more polite. Whether it was receiving a request, granting a favor, or anticipating the end of the interaction that led to this decrease in aggressiveness is as yet unknown. However, it is interesting to note that all *Ss* who became more aggressive as the call went on were in the Spanish accent condition. Perhaps a covert prejudice does exist leading some individuals to become more aggressive to people with a strong Spanish accent under the same conditions that lead them to become less aggressive to persons with an Anglo accent. This finding, as well as the Chicano-Anglo differences referred to earlier, is certainly deserving of fuller investigation.

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THE APPLICATION OF MCCLELLAND'S NATIONAL DEVELOPMENT MODEL TO RECENT DATA*

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SUMMARY

The model of economic development associated with McClelland (1961) hypothesizes that a rise in need achievement (nAch) precedes a rise in rate of development. One result by McClelland showed a significant positive correlation between nAch (1925) and growth in electrical energy production (1929-1950). Newer data presented here showed a zero correlation between nAch (1950) and growth in electrical production (1950-1971). In addition a *negative* correlation was found between nAch (1950) and national income growth (1950-1971).

It was suggested that the McClelland model is an inappropriate model of economic development at least for the present historical period.

A. INTRODUCTION

David's McClelland's provocative work on achievement motivation has formed the basis for much theory and research in social science over the past decade. The national development model associated with him and most fully explicated in *The Achieving Society* (1) receives favorable mention in many introductory texts in the social sciences. McClelland's theory also fits into a tradition presently dominant in research on national development. This tradition emphasizes the role of achievement motivation in producing national development. McClelland's work can best be understood as an attempt to provide empirical support for the notion that an internal characteristic "achievement motivation" produces national development. He has hypothesized that changes in the values of a people precede economic development. In particular, they become suffused with "need achievement" or nAch.

McClelland proposed this idea as a *general* model for economic development. One main factor, nAch, was hypothesized to be involved in development in all historical periods and cultures, and one figure, the entrepreneur, who was especially "loaded" with nAch, was hypothesized to be the *agent* of development in all historical periods.

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McClelland's model, in short, is that a rise in the level of nAch (A) in a society will be associated with a rise in the rate of development (D) with a time lag (T) which will always be positive. Thus, A-T-D is the simplest version of the development sequence.

The empirical studies reported by McClelland (1) most commonly began with the rating of folk tales, literary works, or children's stories in terms of their nAch levels. Differences in nAch level were then correlated with subsequent differences in productivity. The strongest independent support for the A-T-D model was McClelland's intercorrelation of nAch levels in children's readers from various developed countries in 1925, with subsequent growth (between 1929 and 1950) in electricity production per capita. Using a method more fully described in his book, McClelland showed that for a sample of 22 developed countries, 1925 nAch levels were correlated +.53 ($p < .01$) with growth-beyond-expectation during the subsequent 21 year period. This positive correlation provides qualified support for the McClelland A-T-D model of national development.[1] An attempted replication with national income data yielded a nonsignificant positive correlation of +.25. Averaging both growth measures produced a significant positive correlation of +.46 ($p < .05$). The present study was designed to investigate the A-T-D model with more recent data.

B. Method

The McClelland method (1, pp. 87-89) was used with the trivial exception that while he used a regression equation to predict "growth" from initial level of proportion, I have used the regression equation to predict level at the end of the time period from initial level. This allowed for a more straightforward reporting of the base data and had no effect on the correlation coefficients reported. In summary, the procedure used involved obtaining a per capita measure of electrical energy production (or per capita national income) for the beginning (1950) and end (1971) of the time period. A regression equation was obtained predicting the end level from the initial level. The resulting standardized residuals were then correlated with the 1950 nAch levels given by McClelland (1). The data are given in Table 1.

C. Results

A correlation of −.02 appeared between amount-beyond-prediction in electrical energy production and nAch. The parallel correlation for amount

[1] Qualified in the sense that it is still a correlational finding and thus susceptible to "third factor" alternatives even though the measurement of nAch is temporally prior to the measurement of growth.

TABLE 1

ESTIMATES OF NATIONAL ECONOMIC DEVELOPMENT BETWEEN 1950 AND 1971 COMPARED WITH N ACHIEVEMENT LEVEL IN CHILDREN'S READERS IN 1950

Country	n Achievement level 1950[a]	National income in International units per capita 1949-1952[b]	National Income in dollars per capita 1971[c]	Amount above or below predicted values in SD units[e]	Electricity produced in kilowatt-hours per capita 1950[b]	Electricity produced in kilowatt-hours per capita 1971[f]	Amount above or below predicted values in SD units[i]	Average of SD units
Sweden	1.62	628	4032	1.70	2580	8211	.44	1.07
U.S.	2.24	1062	4573	.30	2560	8295	.60	.45
New Zealand	2.05	885	2345	—1.94	1600	5363	.09	—.93
Canada	2.29	807	3769	.44	4120	10024	—2.13	—.85
Great Britain	1.67	598	2249	—.65	1115	4609	.69	.02
Australia	2.38	723	2826[d]	—.46	1160	4689	.64	.09
Finland	1.52	345	2178	.51	1000	4450	.85	.68
U. of S. Africa	2.33	271	750	—1.12	890	—	—	—
Ireland	2.29	438	1442	—.98	301	2132	.27	—.36
Denmark	1.05	616	3192	.58	518	3534	1.25	.92
Poland	.86	150	—	—	375	2134	.04	—
Norway	1.71	466	2877	.89	5310	16123	1.38	1.14
Netherlands	1.48	500	2553	.27	725	3403	.46	.37
Austria	1.86	251	1993	.72	900	3856	.46	.59
Hungary	1.81	139	—	—	304	1448	—.54	—
Chile	1.19	264	567	—1.34	484	948	—1.68	—1.51
Japan	1.29	197	1900	.86	539	3622	1.29	1.08
Portugal	2.10	146	673	—.61	110	902[g]	—.59	—.60
Greece	2.29	163	1083[d]	—.12	73	1200	—.13	—.13
Bulgaria	2.24	210	—	—	66	2461	1.37	—

TABLE 1 (*Continued*)

Country	n Achievement level 1950[a]	National income in International units per capita 1949-1952[b]	National income in dollars per capita 1971[g]	Amount above or below predicted values in SD units[e]	Electricity produced in kilowatt-hours per capita 1950[b]	Electricity produced in kilowatt-hours per capita 1971[f]	Amount above or below predicted values in SD units[i]	Average of SD units
France	2.38	490	2687[d]	.50	790	2907	—.32	.09
Argentina	3.38	368	1052[d]	—1.17	255	1003	—.92	—1.05
Italy	1.33	238	1723	.41	535	2309	—.24	.09
Uruguay	1.86	—	832[d]	—	165	808	—.87	—
Spain	2.33	394	998	—1.38	225	1831	.15	—.61
Belgium	.43	509	2726	.46	996	3388[h]	—.38	.04
Germany	2.14	362	3168	1.81	925	4388	1.01	1.41
Mexico	1.57	—	684[d]	—	175	616	—1.12	—
Switzerland	1.20	631	3064[d]	.33	2230	5184	2.04	—.86
Russia	2.10	267	—	—	—	3266	—	—

[a] From *The Achieving Society* (1) by David McClelland. © 1961, Litton Educational Publishing, Inc. Reprinted by permission of the author and Van Nostrand Co. (Table 3.4, p. 90).

[b] Inferred from initial level and gain data reported in McClelland (1, Table 3.4, p. 90).

[c] See United Nations *Statistical Yearbook* for 1972 (5, Table 187).

[d] Projection from 1969 and 1970 data. Difference between 1969 and 1970 added to 1970 figure to obtain an estimate for 1971. See United Nations *Statistical Yearbook* for 1972 (5, Table 187).

[e] Expected values computed according to regression equation: Predicted Level = 3.55 × Initial Level + 587.

[f] See United Nations *Statistical Papers*, Series J, No. 16, Table 20 for 1971 electrical energy production (4). See United Nations *Statistical Yearbook* for 1972 for 1971 population estimates (5).

[g] No 1971 population estimate for Portugal. 1970 Census data used. See United Nations *Population and Vital Statistics Report* (6).

[h] Electrical energy data for Belgium include Luxembourg.

[i] Expected values computed according to regression equation: Predicted Level = 2.60 × Initial Level + 1121.

beyond-prediction in national income was $-.37$ ($p < .06$), and for both growth measures combined, $-.25$ (n.s.).

D. Discussion

The results of this study, in failing to replicate the McClelland results, are susceptible to two somewhat different interpretations. Either the McClelland results are serendipitous and the general model is incorrect, or the model is correct for the period studied only and is not appropriate for the present period. The resolution of this question requires further research. In any case the lack of empirical support for the A-T-D model raises some question as to the efficacy of entrepreneuring underdeveloped countries towards development, as McClelland has suggested (2). These results are also consistent with the notion of Rhodes (3) that the entire tradition associated with the A-T-D model is perhaps inappropriate for the present period, since it ignores the factors of colonialism and neo-colonialism in analyzing underdevelopment and development.

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COUNTERATTITUDINAL AND PROATTITUDINAL ADVOCACY IN THE FORCED COMPLIANCE PARADIGM: A TEST OF SELF-PERCEPTION THEORY*[1]

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SUMMARY

Self-perception theory has resulted in the hypotheses that (*a*) forced advocacy decreases agreement with the position advocated; (*b*) advocacy in the absence of external pressure results in agreement with the advocated position; and (*c*) forced advocacy results in attitudes held by similar others. To test these hypotheses, 60 female introductory psychology students advocated either a counter- or a proattitudinal position under choice or no-choice conditions. Results from the counterattitudinal cells replicated the standard effect of greater attitude change in the direction advocated under choice conditions than under no-choice conditions ($p < .05$); there were no differences between proattitudinal cells; no-choice *Ss*' final attitudes differed significantly from their estimates of the typical *S*'s attitude ($p < .001$). Results were consistent with hypothesis *b* but not with *a* and *c*. A modification of self-perception theory is presented to account for the results.

A. INTRODUCTION

Both cognitive dissonance theory and self-perception theory adequately explain the standard forced compliance effect of an inverse relationship between the amount of pressure for advocating a counterattitudinal position and the resultant degree of attitude change. In the case of proattitudinal advocacy, however, cognitive dissonance theory is inapplicable, while self-perception theory has resulted in two predictions. First Nisbett and Valins (3) predict that *Ss* who advocate a position because of external pressure come to agree less with the advocated position than *Ss* who advocate a position in absence of strong external pressures. Second, Bem (1) and Bem and McConnell (2) predict that (*a*) *Ss* who advocate a position in the absence of strong reinforcement contingencies subsequently hold attitudes substantially in agreement with the position advocated, and that (*b*) *Ss* who advocate a

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position while under the influence of strong reinforcement contingencies subsequently hold attitudes similar to those they feel are held by the typical *S*. The major difference between these predictions is that Nisbett and Valins expect *Ss* advocating a position because of external pressures to tend to disagree with the advocated position, while Bem and McConnell predict that they adopt the attitudes they feel are held by the average *S*. Bem and McConnell have supported their prediction with the observation that in many forced compliance studies, the mean attitude of external pressure condition *Ss* equals the mean attitude of control *Ss*. Since the mean attitude of controls is in fact the "typical" *S*'s attitude, they then conclude that under external pressure *Ss* must have inferred that their attitudes were the same as the typical *Ss*'. But the comparison of group means is not a critical test of Bem and McConnell's prodiction. A more appropriate test of their self-perception theory prediction is a comparison of external pressure *Ss*' final attitudes with their actual ratings of the typical *S*'s attitude. For this reason, *Ss* in the present study were asked in the pretest to estimate the typical student's attitude on the key issue.

B. Method

Female students in an introductory psychology class at Boston University took part in the study in order to receive course credit. All *Ss* were directed to a secretary's office for participation in the "Campus Opinion Survey." The secretary asked them to complete a questionnaire and explained that they would receive their two hours of experimental credit when they returned a week later for a one-hour session. The "Campus Opinion Survey" carried the subheading "Sponsored by SPC" (School of Public Communication) and consisted of two pages. On both pages, a 21-point rating scale labeled from "agree without reservation" to "disagree without reservation" was followed by the same 10 items, each with a space for the *S*'s response. The items dealt with a variety of university issues and included the key statement: "A pass-fail system makes it easy for students to avoid doing required work." Extensive pretesting had shown a bimodal distribution of responses to the pass-fail item. Nearly all students held a moderate opinion on the issue, many were in favor and many were against a pass-fail system, but very few were neutral or responded with extreme attitudes.

Two sets of the questions were given in order to obtain (*a*) a measure of *Ss*' initial attitudes toward the pass-fail issue, and (*b*) a measure of *Ss*' perceptions of the typical student's attitude on the issue. Instructions for the first page, therefore, requested that *Ss* answer the questions with their "*own*

opinion," while instructions on the next page asked *S*s to answer each statement as they thought "the *majority* of students would."

Three to six *S*s were tested at the same time in the second part of the experiment. As *S*s arrived at the seminar-size room, the *E* checked their names, asked them to be seated at any of the widely separated desks, and unobtrusively noted which desk each *S* chose. When all *S*s had arrived, the *E* left the room and picked up the booklets which his assistant had prepared for each *S*. The *E* ordered the booklets according to the seating position of the *S*s in the room and was then able to hand each *S* a tailored booklet while giving the impression that all the booklets were identical. After handing out the booklets, he said,

> We are asking each of you to write a specific essay on an educational issue. The essay need not take longer than five minutes. Just read the instructions on the top of the first page and follow what they say. After you have finished the essay, sign your name in the space provided on the first page and go on to the second page. I will be glad to answer any questions you have at the termination of the experiment.

The booklets that the *E* distributed were prepared after *S*s had been randomly assigned to one of the four experimental conditions or to the control group (there were 15 *S*s in each condition). Half of the experimental *S*s were given the choice of deciding which position on an issue to advocate, while the other half were *not* given a choice. Half of the *choice* group and half of the *no-choice* group then advocated a counterattitudinal position, while the other half of each group advocated a proattitudinal position. Controls were given a choice of advocating any position they liked on an issue unrelated to the issue used in the experimental conditions. The first page of the two-page booklet contained both manipulations and was titled "Study on Political and Educational Values."

*S*s in the *choice condition* were given the *impression* of having freedom of choice with a statement that they could advocate either side of the issue. The freedom of choice statement was followed, however, by a subtle request designed to persuade the *S* to advocate the particular position that had been randomly assigned to her. These instructions were developed through pretesting to insure that *S*s advocated the requested position, presumably because of their desire to help the *E*, yet felt that they were free to advocate any position they liked. The instructions read, "In your essay, you may agree or disagree that a pass-fail system makes it easy for students to avoid doing work. However, we would be greatly helped if you would write in favor of

the following point of view." A specific position on the issue was then specified.

No-choice Ss, on the other hand, were given no say in selecting a position to advocate; they simply were told to write on a specified topic. Instructions for No-Choice *Ss* stated, "We need to know the specific reasons why some students oppose (favor) a pass-fail system. Regardless of your own opinions, write an essay on the following topic." The topic was stated and the instructions continued, emphasizing that the *S* should not give her own opinion.

The second manipulation instructed *Ss* to advocate either a *counterattitudinal* or a *proattitudinal* position on the pass-fail system issue. Each *S* was assigned one of seven possible positions on the pass-fail issue, the particular position depending on the *S*'s pretest score and on the condition. The position that *Ss* in the counterattitudinal cells were instructed to advocate, for example, was approximately 12 scale points distant from their pretest response. The 12-point interval was selected because it insured that all counterattitudinal condition *Ss* advocated a position that (*a*) was equally discrepant in scale units from their pretest score and (*b*) was, in respect to their pretest score, always on the other side of the neutral point of the scale. Proattitudinal condition *Ss*, on the other hand, were given a position to advocate which was equivalent to their pretest response to the pass-fail item.

The positions to which *Ss* were assigned corresponded directly with the seven labels that appeared on the pretest scale. *Ss*, for example, who on the pretest selected the number 8 (below which was the label, "mildly agree") were assigned either the counterattitudinal position of "I disagree without qualification that a pass-fail system makes it easy for a student to avoid doing required work," or they were assigned the proattitudinal position of "I slightly agree that . . . ." The few *Ss* who took a neutral position on the pretest—either a 10, 11, or 12—were run but were not included in the analyses.

Beneath the instructions on the first page of the booklet was space for the essay. Upon completing their essays, *Ss* filled in their name, major, and identification number at the bottom of the page. They were then instructed to complete the second page of the booklet. The same 21-point agree-disagree scale that had been used in the pretest appeared at the top of the second page. Following the scale were several groups of questions. The first section was labeled "Political Values" and consisted of two questions followed by two additional items under the heading "Freedom of choice in political matters." The second section of questions used the same format and was

titled "Education Values." The first question served as the main dependent measure. It was repeated from the pretest and read, "A pass-fail system makes it easy for students to avoid doing required work." The check on the choice manipulation was an item appearing under the subheading "Freedom of Choice in Education Matters at B.U." The item stated, "In this particular experiment, I was given freedom of choice in choosing which side of the issue to write on in my essay."

When all *Ss* finished their booklets, the *E* explored any suspicions the *Ss* were willing to reveal, debriefed them, and pledged them to secrecy. Despite a few instances of general suspiciousness, no *Ss* seemed aware of the experiment's purpose. One *S* in the choice-counterattitudinal condition misread the instructions and her work was discarded.

C. Results

1. *Replication of the Standard Counterattitudinal Advocacy Effect*

The choice manipulation was highly successful. *Ss* who had a choice agreed significantly more than did no-choice *Ss* that they were "given freedom of choice in choosing which side of the issue to write on" in their essay ($M = 13.1$ and 3.9, respectively, $t = 4.41$, $df = 28$, $p < .001$). Attitude change scores for each *S* were calculated by taking the absolute difference between the pretest and posttest responses on the pass-fail system items. All changes where *Ss* became more extreme in their attitude (movement away from the neutral point on the scale) were given plus signs, while all changes that became less extreme or that crossed the neutral point on the scale received minus signs. Analysis of change scores indicated that the dissonance and self-perception theory predictions were supported. *Ss* who were given a choice in deciding which essay to write changed their attitudes significantly more than did *Ss* who had no choice, and they changed them in the direction that they advocated in their essay ($M = -7.3$ and -3.7, respectively, $t = 2.20$, $df = 28$, $p < .05$). Similarly, choice *Ss* changed their attitudes significantly more than control *Ss* ($M = -7.3$ and -1.3, respectively, $t = 4.99$, $df = 28$, $p < .001$), while no-choice *Ss* did not differ appreciably from controls ($t = 1.66$, $df = 28$, $p < .2$). Clearly, the present experiment successfully created the conditions necessary to produce the typical counterattitudinal advocacy effect.

2. *Self-Perception Theory Predictions for Proattitudinal Advocacy*

The choice manipulation was also highly effective for *Ss* in the proattitudinal conditions. *Ss* in the choice cell felt significantly more freedom in

selecting a position to advocate than did no-choice *Ss* ($M = 10.9$ and 3.7, respectively, $t = 3.10$, $df = 28$, $p < .01$). The attitude change scores, on the other hand, showed that there were no appreciable differences between the choice condition, the no-choice condition, and the control condition ($M = -1.8$, -1.3, and -1.3, respectively). Proattitudinal advocacy had no effect on attitude change, regardless of the degree of choice given to *Ss* in choosing the side to advocate. The results, therefore, failed to support the Nisbett and Valins prediction.

The results were, however, partially consistent with Bem's predictions. The finding that choice condition *Ss* did not change their attitudes after advocating a proattitudinal position supported the prediction that *Ss* who have freedom in advocating a position subsequently hold attitudes substantially in agreement with the position advocated. On the other hand, no-choice *Ss* did not infer their own attitudes from their estimates of the attitude held by the typical student, as was predicted by Bem. If no-choice *Ss* had used their perception of the typical student's attitude as an estimate for their own attitude, then the absolute difference between their perception of the typical student's attitude and their own posttest attitude should have been small. Results from both the proattitudinal and counterattitudinal no-choice cells showed, to the contrary, that the mean absolute difference between *Ss*' estimates of the typical student's attitude and their own posttest attitude was significantly different from zero (the absolute mean differences were 5.3 for both cells; $t = 4.85$, $df = 14$, $p < .001$ and $t = 5.84$, $df = 14$, $p < .001$, respectively). These means did not differ significantly from the mean for the control group.

D. Discussion

Neither cognitive dissonance theory nor the self-perception theories of Bem and of Nisbett and Valins adequately account for the results of the present study. Cognitive dissonance theory, for example, easily explains the findings in the counterattitudinal advocacy conditions, but the theory is limited in that it is not applicable to the proattitudinal advocacy conditions. Similarly, Bem's self-perception theory can account for the choice conditions but not for the no-choice cells, and Nisbett and Valins' self-perception theory predictions were unsupported by the finding of no differences between proattitudinal cells.

In retrospect, perhaps the failure to support Nisbett and Valins' prediction should not have been surprising. Their theory makes no distinction between counterattitudinal and proattitudinal advocacy situations. Thus, if they ex-

pect high external pressure for advocating a proattitudinal position to result in *Ss* ignoring their initial beliefs about the issue, then they should expect the same effect for *Ss* who advocate counterattitudinal positions under high external pressure. Counterattitudinal advocacy under high external pressure should result in *Ss* disagreeing even more with the issue than they did before their counterattitudinal behavior. Numerous forced compliance studies of counterattitudinal advocacy have repeatedly shown, however, that high external pressure for counterattitudinal advocacy has no effect whatsoever on attitudes.

Although neither the dissonance nor the self-perception theories appears satisfactory, a modification of Bem's theory nicely accounts for the results. To begin with, *Ss* very likely arrive at an initial attitude through a variety of processes. They may simply recall a previous attitude; they might infer an attitude from related attitudes; they could give a socially desirable response; and so on. When queried again on a posttest at some later time, it is likely that they go through the same process to arrive at a response *unless* some significant factor has occurred to influence the process. We have just seen that advocacy performed because of strong pressures is *not* such a factor. Thus the most parsimonious explanation for the posttest answers of no-choice *Ss* is that they respond by whatever process they would have used had there been no forced compliance under strong pressure. Bem's explanation, that no-choice *Ss* go through a new process of estimating the typical *S*'s attitude and then adopting that attitude as their own, is more complex and, more importantly, is not supported by the data.

Advocacy in the absence of strong external pressures (conditions of choice, low incentive, low threat, etc.), however, *is* a factor than can influence *Ss*' responses. And here the self-observation notion of self-perception theory fits nicely. *Ss* who chose the particular position that they advocated assume that their behavior must have been, at least in part, a consequence of a sympathetic attitude toward the position. After all, they did choose the advocated position over other alternatives. If the advocated position differs from *Ss*' earlier beliefs, as was the case in the counterattitudinal half of the study, then *Ss* change their attitudes in the direction advocated. On the other hand, when *Ss* advocate their own attitude (as in the proattitudinal portion of the study), then, of course, the position advocated and their earlier beliefs are identical, and the *Ss* do not change their attitudes.

Finally, a note of caution is in order. All *Ss* in the study were American females. Even though the results from the counterattitudinal cells have been

obtained in many other forced compliance studies, they could represent a uniquely American phenomenon. Furthermore, the results from the proattitudinal conditions cannot yet be generalized to male *Ss*.

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COGNITIVE CONSISTENCY, REPRESSION-SENSITIZATION, AND LEVEL OF MORAL JUDGMENT: REACTIONS OF COLLEGE STUDENTS TO THE WATERGATE SCANDAL*

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SUMMARY

The present study reports questionnaire data obtained from undergraduate students enrolled in introductory psychology (50 males, 52 females) with regard to opinions concerning President Nixon's possible involvement in the Watergate scandal of 1973. In addition, *Ss* completed Byrne's Repression-Sensitization Scale and the Hogan-Dickstein Moral Judgment Scale. As predicted from cognitive consistency theory, *Ss* who had voted for Nixon in the 1972 Presidential election minimized the likelihood of Nixon's possible guilt more so than did those who no longer supported him ($p < .05$). Furthermore, repression-sensitization and moral judgment maturity were found to be related (both $p < .05$) to formation of Watergate-related attitudes.

A. INTRODUCTION

Considerable evidence exists to support the notion that human beings regard a state of cognitive inconsistency as aversive. Numerous studies, primarily laboratory experiments, have shown that when people are exposed to information contrary to their existing beliefs, they tend either to change their beliefs to accommodate the new information or discount the contradictory information (1). Despite strong laboratory support for cognitive consistency models, its applicability to real-life situations remains somewhat unclear. Some (11, 12) have identified possible sources of experimental artifacts in cognitive consistency studies; others (4, 9) have questioned the degree of congruence between laboratory experiments and real world or naturalistic attitude change experiences. The latter problem has been a continuing concern among those interested in attitude change. Freedman (5) has perhaps been as pointed in this criticism of consistency theory as anyone. He suggests that cognitive inconsistency may not be an important matter for most people under most real-life circumstances and that when they do notice inconsistency they can comfortably tolerate it in such situations.

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This lack of confidence in the motivational properties of cognitive inconsistency in real-life situations has instigated attempts to test the proposition that cognitive consistency motivates attitude change in naturalistic settings (7, 10).

Silverman (10) attempted to test the potency of cognitive consistency motivation in a naturalistic event: namely, the highly publicized Chappaquiddick incident involving Senator Edward Kennedy in 1969. Silverman administered a questionnaire to a large number of university-affiliated people during the third week following the incident. His major analysis consisted of contrasts between "changer" (those who shifted from a high to a low regard for Kennedy (following the incident) and "nonchangers" (those who maintained high regard for Kennedy in spite of the incident).

Consistent with his predictions, Silverman found that *Ss* who continued to show high regard for Kennedy as a person, in contrast to those who did not, were (*a*) more favorable toward him as a political figure and potential President, (*b*) less willing to agree that the court sentence given Kennedy was too lenient, (*c*) less willing to agree that in the same circumstances a private citizen would have been treated more severely, and (*d*) more in favor of Kennedy remaining in the Senate.

More recently, MacDonald and Majumder (7) found additional evidence to support predictions of cognitive consistency theory in another naturalistic political situation. Using an approach similar to that employed by Silverman, they analyzed reactions to the much publicized Senator Eagleton incident (fully described in MacDonald and Majumder's study) by making comparisons between nonchangers (those who maintained a high regard for Senator Eagleton despite news that he had been a mental patient) and changers (those who changed to unfavorable attitudes toward Eagleton following the revelation). Of a total of 15 separate questionnaire items comparing changers and nonchangers, significant ($p < .05$ or better) differences were found on 11 of the items favoring the cognitive consistency predictions. Typical of those comparisons were findings that nonchangers as compared to changers were less likely to believe (*a*) that Eagleton should be dropped from the Democratic ticket, (*b*) that he *would* be dropped, (*c*) that news of his mental health record would adversely affect the Democratic ticket, and (*d*) that Eagleton was wrong in allowing his name to be entered on the party ticket.

The present study attempted still another test of cognitive consistency theory in a real-life political situation: namely, the Watergate scandal. By the middle of June, 1973, the time when the data of the present study were

collected, the televised hearings of the Special Senate Watergate Committee had been underway for several weeks, attracting considerable public attention and massive media coverage. By this time, several high cabinet-level officials of the Nixon administration had been criminally implicated in the Watergate scandal. Although President Nixon had twice made nationally televised statements asserting that he had no prior knowledge of the Watergate break-in and had no knowledge of the subsequent cover-up, many Americans openly expressed doubt regarding the President's professed innocence. A *Time* magazine political opinion poll published May 28, 1973, reflected this skepticism. Forty-one percent of those sampled believed that Nixon did have advance knowledge of the Watergate bugging, and 58 percent believed he knew of the cover-up that followed. On the question of impeachment, 44 percent felt that Nixon should be removed from office through impeachment if he knew of the bugging in advance, and 24 percent believed he should be impeached if he knew only of the cover-up that followed.

Consistency theory suggests that when one is presented with information that is inconsistent with existing attitudes, he will either reject or distort the new information allowing the original belief to be maintained as a tenable postion, or change the belief. Thus, cognitive consistency theory would suggest that previous Nixon supporters would, relative to McGovern supporters, be more motivated to minimize the likelihood of Nixon's criminal involvement in Watergate. In this way, they would be better able to perceive their previous endorsement of Nixon as reasonable and justified, thereby avoiding cognitive inconsistency. To test this prediction, four items from *Time* magazine's poll previously mentioned were given to a large number of undergraduates. In addition, respondents were asked to rate the extent to which the Watergate revelations were personally distressing to them, whom they had voted for in the 1972 Presidential election, whom they would vote for if the same election were to be held the next day, and to indicate their present feelings on the Watergate affair.

However, not all previous Nixon supporters maintained support for him following Watergate revelations. In a manner similar to that of Silverman (10) and MacDonald and Majumder (7), the present study compared questionnaire responses of changers (in this case, those who had voted for Nixon in 1972 but stated that they would not vote for him if an election were held again) and nonchangers (those who voted for Nixon in 1972 and stated that they would do so again). Nonchangers relative to changers were expected to minimize the likelihood of Nixon's involvement in the Watergate bugging and cover-up, and to be less personally distressed by the Watergate scandal.

In addition to the above predictions based on cognitive consistency theory, the present study was interested in the influence of repression-sensitization (2, 3) and moral judgment level (6) upon the *S*'s responses to certain Watergate-related questions. Previous research on repression-sensitization (2, 8) has suggested that individuals who score low on Byrne's Repression-Sensitization Scale (called "repressors") tend to use denial and avoidance in responding to threatening information. Thus, repressors were expected to minimize the likelihood of President Nixon's criminal involvement in Watergate.

Since the Watergate scandal aroused many issues concerning morality in government, it was expected that the *Ss*' level of moral judgment maturity would influence perceptions of certain Watergate-related issues. Specifically, it was predicted that higher levels of moral judgment maturity would be associated with beliefs that Nixon should be removed from office if he was involved in the Watergate bugging or subsequent cover up.

B. Method

1. *Subjects*

The total sample consisted of 102 university-affiliated individuals (50 males, 52 females). Although the first hypothesis involved the total sample, the second involved only *Ss* who had voted for Nixon in the 1972 Presidential election ($N = 58$).

2. *Procedure*

An eight item Watergate questionnaire was administered to an introductory psychology class during a regular class period. *Ss* were asked to rate on a seven-point scale the extent to which they believed President Nixon knew of the Watergate bugging or cover-up, whether he should be impeached and removed from office if he knew of either, and the extent to which they felt distressed about Watergate. *Ss* also wrote an open-ended, essay-type response regarding their general reactions to the Watergate affair, indicated whom they had voted for in the 1972 Presidential election, and whom they would vote for if an election were held again. Completion of this was voluntary (only five of 107 refused to participate), and respondents were assured that all responses would be confidential and used only for research purposes. The Byrne (3) Repression-Sensitization Scale and the Hogan-Dickstein (6) moral judgment measure were administered three weeks prior to the questionnaire and had no apparent connection with it.

C. Results and Discussion

Analyses of variance showed significant effects of prior candidate choice upon each response item as follows: Item 1: belief regarding Nixon's prior knowledge of the Watergate bugging ($F = 12.60$, $df = 1/100$, $p < .005$); Item 2: belief regarding Nixon's knowledge of the cover-up ($F = 8.18$, $df = 1/100$, $p < .005$); Item 3: belief regarding whether Nixon should be impeached if he knew of the break-in ($F = 18.66$, $df = 1/100$, $p < .005$); Item 4: belief regarding whether Nixon should be impeached if he knew only of the cover-up that followed ($F = 11.02$, $df = 1/100$, $p < .005$); and Item 5: ratings of the extent to which *Ss* considered the Watergate revelations distressing ($F = 7.77$, $df = 1/100$, $p < .01$). On the open-ended question concerning general reactions to the Watergate affair, a chi square was performed on three categories of responding: minimizing (e.g., "Bugging of this sort has been going on for years. It's nothing new."); maximizing (e.g., "My respect for Nixon and the Republican Party has been shattered."); or neutral (failure to make an evaluative judgment on the Watergate affair). The results were significant ($\chi^2 = 7.29$, $p < .05$). The percentages of responses for Nixon voters in each of the three categories were as follows: minimizing, 44%; maximizing, 27%; and neutral, 29%. For McGovern voters, the percentages were minimizing, 20%; maximizing, 50%; and neutral, 30%.

The above results confirm the first hypothesis of the present study and offer strong support for cognitive consistency theory. *Ss* who had voted for Nixon in the 1972 Presidential election showed greater motivation to minimize the likelihood of Nixon's involvement in Watergate and reported being less distressed by the scandal than did McGovern voters. Such findings, of course, conform to intuitive expectations.

Although having voted for Nixon apparently induced strong cognitive consistency motivation to minimize the perceived distress of the Watergate affair in general and Nixon's possible guilt in particular, some of the *Ss* (30 of 58) who had voted for Nixon in the 1972 election indicated that they would no longer support him and would not vote for him if another election were held. Cognitive consistency theory would predict that this subgroup of previous Nixon supporters (changers) would have less need or drive to minimize Watergate than those whose support for Nixon had endured through the Watergate revelations (nonchangers). Having undergone a change of attitude from their previous support of Nixon, there would no longer be cognitive inconsistency for these changers with their new nonsupport attitude.

To test this second hypothesis, it was predicted that nonchangers would reflect a greater motivation to minimize information inconsistent with support for Nixon than changers on the five questionnaire items. Consistent with the predicted outcome, nonchangers compared to changers were (*a*) less likely to believe that Nixon knew in advance of the Watergate bugging ($F = 6.30$, $df = 1/56$, $p < .05$); (*b*) less likely to believe that Nixon knew of the cover-up that followed ($F = 4.56$, $df = 1/56$, $p < .05$); (*c*) less likely to believe that Nixon should be impeached if he did know in advance of the bugging ($F = 13.70$, $df = 1/56$, $p < .01$); (*d*) less likely to believe that Nixon should be impeached ($F = 24.70$, $df = 1/56$, $p < .001$); and (*e*) less distressed by the Watergate revelations ($F = 16.30$, $df = 1/56$, $p < .001$). On the open-ended question concerning general reactions to Watergate, significant differences were found ($\chi^2 = 9.08$, $p < .01$) between changers and nonchangers in terms of the frequency of those *S*s' minimizing, maximizing, and giving neutral responses. These were 36%, 47%, and 17%, respectively, for changers; and 57%, 11%, and 32%, respectively, for nonchangers. These findings confirm the second hypothesis of the present study. That is, nonchangers compared to changers showed greater motivation to minimize Watergate revelations in order to reconcile the affair with the continued support for President Nixon.

Finally, the hypothesized influence of repression-sensitization (R-S) and moral judgment upon perceptions of Watergate-related questions was supported, at least in part. Results indicated a small but statistically significant correlation ($r = .22$, $p < .03$) between R-S scores and Item 1. That is, as predicted, *S*s who indicated that they believed Nixon did not know of the Watergate bugging in advance tended to score lower (more repressive) on the scale. With regard to Item 2 on the questionnaire and the *S*'s R-S score, again a small but significant correlation ($r = .14$, $p < .05$) was found. Repressors tended to believe that Nixon was innocent of the Watergate cover-up.

Two judges assessed moral judgment responses from the Hogan-Dickstein scale. Interjudge reliability in scoring was .85. Scores on this measure were significantly related to the *S*s' views regarding impeachment. There was a tendency for *S*s with higher levels of moral judgment to report that Nixon should be impeached if he knew of the Watergate bugging ($r = .16$, $p < .05$) or the cover-up ($r = .18$, $p < .025$). Interestingly, when the latter two correlations were computed separately with the use of only *S*s who had voted for Nixon, the coefficients increased moderately to $r = .19$ ($p < .05$) and $r = .27$ ($p < .025$), respectively. However, for the remaining *S*s, who had

not voted for Nixon, the magnitude of both correlations dropped to nonsignificant levels, $r = .06$ and $r = .07$, respectively. The decreased relationship between moral judgment scores and attitudes toward impeachment among non-Nixon voters may be attributable to the highly skewed distribution of responses regarding impeachment. That is, nearly all the *Ss* strongly believed he should be impeached if he knew of the bugging or the cover-up. Responses for Nixon voters, on the other hand, were more normally distributed. A breakdown of responses, such as that reported for *Ss* on the moral judgment scale, did not produce differential outcomes between groups on the repression-sensitization scale.

Thus, the significant differences between changers and nonchangers in the present study are quite consistent with comparable findings with politically related situations reported by Silverman (10) and MacDonald and Majumder (7). Furthermore, the data of the present study extend the findings of previous research by identifying personality dimensions related to attitude formation in a real-life politically related event.

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CHILDREN'S SOCIAL SENSITIVITY, ALTRUISM, AND SELF-GRATIFICATION*[1,2]

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Summary

The relationship between children's social sensitivity and specific measures of self-gratification and altruism as variables hypothesized to be importantly linked with the development of social sensitivity was investigated. Social sensitivity was measured by asking 100 children (55 boys and 45 girls of median age 11.1 years) to describe the feelings and motives of two adults in happy, angry, anxious, and sad interactions that were presented on videotape. Self-gratification and altruism were measured by the number of pennies that the *S*s took as self-rewards and the number of pennies they voluntarily shared with others from their earnings. The hypotheses that social sensitivity is positively correlated with altruism and negatively correlated with self-gratification were supported ($p < .01$). Additionally, the data also supported the prediction that the *S*s' positive or negative attitudes toward altruism are correlated with altruistic or self-rewarding behaviors and acts ($p < .05$). The implications of these findings for children's socialization training are discussed.

A. Introduction

Notwithstanding the central importance of the concepts of social sensitivity, altruism, and self-gratification in contemporary clinical-developmental and humanistic psychology (4, 8, 16, 29), there is an enormous discrepancy between the theoretical significance attributed to these concepts and our understanding of the relationship between these concepts. The present study is part of a research program intended to evaluate the relationship between social sensitivity and other significant variables of personality functioning, such as altruism and self-gratification, which contribute significantly to the socialization of the child (3, 8).

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Copyright, 1976, by The Journal Press.
[1] The study was conducted while the author was on sabbatical leave in The United States.
[2] Requests for reprints should be sent to the author at the address shown at the end of this article.

According to Borke (9), social sensitivity in its advanced stage is the ability to perceive the world from the perspective of the other, and this sensitivity is manifested in very young children as a conscious awareness that other people have feelings which are different from their own. Recent studies (9, 10, 25) have shown that fairly young children can identify situations that evoke different kinds of affective responses, which suggests an ability to put oneself in another person's eyes.

Sullivan (28) noted that the ability to perceive accurately and comprehend the feelings of others becomes a psychological variable of major importance in the future personality functioning of the child.

Before discussing the possibility of a relationship between social sensitivity, altruism, and self-gratification, it is necessary to clarify, as far as possible, the meaning and nature of these concepts.

Macaulay and Berkowitz (20, p. 3) defined altruism as behavior carried out to benefit another without anticipation of rewards from external sources. While recognizing the significance of underlying motives and situational determinants of altruism, they concluded that, by implication, any behavior which benefits another in need, regardless of the situation or the helper's motives, is altruistic.

Taft (29) and Gompertz (16) provided general reviews of the work done in social perceptions and sensitivity in person-perceptions. In answering the question about what factors are related to the ability to judge accurately the feelings and emotions of others, these reviewers noted that according to Dymond (13), sympathy and sensitivity to the inferred needs and feelings of others was a very important trait that contributed to the individual's engaging in altruistic helping responses.

Murphy (22) noted that feelings of sympathy to the needs of others were related to altruistic responses. Unfortunately, many of Murphy's observations concerning the positive correlation between empathic perception and the arousal of altruistic responses have not been more systematically studied. Certainly the observation that these variables are correlated is a provocative finding worthy of further exploration (12).

While there is very little research available on the self-therapeutic effects of social sensitivity, common sense would suggest that the greater the individual's ability to perceive the feelings and emotions of others, the more his helping responses would be aroused and the stronger would be his inclination for self-denial.

By implication, an actor responds altruistically because he is sensitive to another's experience or cognitive representation of another's experience.

Thus, in the present study, a positive correlation was hypothesized between social sensitivity and altruism (Hypothesis 1). It was recognized that while social sensitivity and altruism cannot be identified as distinct forms of behavior, they may be more accurately identified as highly correlated dispositional components of action (2). Also implicit in the hypothesis linking social sensitivity and altruism is the assumption that both these variables are significant to person-perception and self-perception as core personality attributes (19).

It was further hypothesized that the degree to which the *S* engages in altruistic sharing or helping is associated with the degree of positive attitude he has toward altruistic responses (Hypothesis 2). Implicit in this hypothesis is the assumption that even very young children have conflicts in their own attitudes and experiences in regard to altruistic actions. In this regard, Aronfreed's (3) observations are that the most frequent and potent foundations for the child's inclination to share with others in distress would be the many or few occasions on which he is the recipient of actions that others direct to the relief of his own distress. Thus the child's own social experiences lead to a biased or prejudiced attitude toward altruistic responses. These prejudices, in turn, are determinants of the degree to which he will respond either by self-denial and sharing, or by self-concern and self-gratification.

In linking social sensitivity with self-gratification, it was hypothesized that the socially sensitive children would set low self-reward standards (Hypothesis 3) and high standards of altruism. In other words, a negative correlation was expected between the variables of social sensitivity and self-gratification and a positive correlation with altruism. Hypothesis 3 is also related to Rosenhan's (24) deduction concerning the negative relationship of self-gratification and altruism in both drive and reinforcement theory. Implicit in Hypothesis 3 is the notion that the individual who has a high level of concern about self-gratification has less inclination to help others unless he anticipates some benefits for himself (14, 26). Following this line of reasoning, Hypothesis 4 predicted a negative correlation between self-rewarding responses and altruistic responses.

In summary, the specific hypotheses derived from this research exploring the relationship of social sensitivity with altruism and self-gratification predicted as follows:

1. A positive correlation between social sensitivity and altruism.
2. A negative correlation between social sensitivity and self-gratification.
3. A negative correlation between altruism and self-gratification.
4. An association between the degree of the *S*s altruistic or self-rewarding

responses and the degree of positive or negative attitudes that the *S* had towards altruistic acts.

B. Method

1. *Subjects*

Ss were 100 fourth and fifth grade children all of whom attended public schools in a middle-class suburban community in Centre County, Pennsylvania. They were invited to participate in the study through the cooperation and assistance of the community associations in the county. A total of 145 students volunteered. Previous studies have found a positive correlation between the ability to judge others and increasing age (25), socioeconomic status (6), and intellectual status (1). Therefore, in the present study, *Ss* were screened and equated for age, socioeconomic status, and intellectual status.

Hollingshead's (18) two-factor index of social position was used to determine socioeconomic status. It was found that 65 percent of the fathers of the children in the sample were in the highest two occupational categories described in the two-factor scale, and the remaining 35 percent were in the third and fourth categories. No *Ss* whose parents fell in the lowest two categories of occupations were selected. Ninety percent of the fathers of the *Ss* in both categories were affiliated with academic departments of the State University.

Median age of *Ss* was 11.1 years with ages ranging from 10.1 to 11.9. Since it was anticipated that the social sensitivity measure to be used in the study would rely rather heavily on verbal understanding, *Ss* were equated on *Peabody Picture Vocabulary Test,* which is a reliable measure of children's verbal understanding. The mean vocabulary *IQ* for all the selected *Ss* was 108.5, $SD = 9.8$.

2. *Measure of Social Sensitivity*

Recent investigations of social sensitivity among children (9, 25) have attempted to devise measures of social sensitivity that focused on social interactions and emotional perceptions that were realistic and distinctly identifiable and employed several sensory elements. The present study used a measure of social sensitivity adapted from Rothenberg (25) who employed a series of dialogues in the form of interactions between two adults. Major emotions of happiness, sadness, fear, and anger were central to these stories, and the basic task for the preadolescent *S* was to identify the emotion. The dialogues used to assess the interpersonal perception of the *Ss* were presented in the form of tape recordings. In adapting Rothenberg's measure for use in

the present study, the tape recordings were replaced by videotapes. Thus, the adapted technique employed both visual and auditory cues. It was hoped that this combination of cues would further reduce the likelihood of *Ss* having to draw upon their own projections or imagination in order to grasp the social situation. Also, the addition of the visual procedure was based on the rationale that in actual social interactions the child reacts to the coordinated and integrated aspects of sound, speech, movements, and facial expressions rather than to the isolated components of voice and tone.

The dialogues used in the present study were essentially the same as those designed by Rothenberg (25). She reports reliabilities of .93, .94, .96, and .86 for her four stories, and records internal consistencies among the four tapes ranging between .419 and .283. In her study, the sum of the scores obtained on tapes 1, 2, 3, and 4, representing emotions of happiness, anger, anxiety, and sadness, respectively, yielded a total score which was used as the measure of social sensitivity for each *S*.

In the adapted videotape measure used in the present study, the scoring procedure was the same as employed by Rothenberg (25). The scoring procedure yielded (*a*) a score for accurately describing an actor's feelings, (*b*) a score for identifying the actor's motive or reason for feeling the way he/she did, and (*c*) a score for accurately observing the actor's gestures or movements that indicated an emotion. The *Ss*' scores for each of the dimensions of "feelings," "motives," and "movements" were combined to yield a net social sensitivity score. Each child observed the videotape twice, first for noting a change in the actor's feelings during the course of the conversation, and second for identifying the actor's motive.

The interview with each *S*, after the observations of the videotape, were carried out individually.

To help prevent the possibility of a carry-over from one videotape enactment to another, the conversations in each of the stories dealing with the emotions of happiness, sadness, fear, and anger were acted by four different pairs of actors. In order to reduce the rater-ratee similarity effect (11), adult models and adult interactions were used in the videotapes. Also, to avoid any vicarious identification with *Ss*' parents, young adults between the ages of 18 to 22 years were used as models in the videotapes.

3. *Measures of Altruism and Self-Gratification*

In view of the difficulty confronted by previous investigators (e.g., 15, 19) in obtaining consensual agreement on the determinants of altruism and the range of ulterior motives underlying altruistic behavior, much of the recent research has not been concerned with establishing motivational specifications.

Most behavioral researchers have skirted the problems associated with motives by employing operational measures, such as prosocial behavior (5), volunteering (23), and sharing (27), all of which imply helping, self-sacrificial, and "other-directed" behavior.

In the present study, the behavioral measure of altruism as the voluntary sharing of one's earnings with others (21, 27) was considered to be the most appropriate dependent measure, since sharing is one of the long term behavioral dispositions that is the central goal of children's early socialization (19). Conversely, self-gratification reflects self-concern or egoism and is viewed as one of the behavioral tendencies to be discouraged in early socialization (7). Therefore, from the behavioral standpoint, the variable of self-gratification was viewed, in this study, to be the opposite of sharing behavior.

The dependent measure of self-gratification was the number of extra pennies with which the *S* rewarded himself for cooperating in the experiment; the dependent measure of altruism was the number of pennies the *S* chose voluntarily to share with other *S*s who supposedly would otherwise get no reward.

4. *Attitude Test*

Attitude toward the dual altruism *versus* self-gratification pattern was assessed by a Likert-type scale of 26 items selected on the basis of pretests with another student group of comparable age and socioeconomic status and *IQ*. Items concerned (*a*) the social desirability of an altruistic or self-gratification orientation for adults and children, (*b*) the moral right or wrong about altruism and self-gratification, (*c*) the degree and frequency of the *S*'s experience of being the recipient of adults' or peers' help. *S*s used a five point rating scale to indicate degree of agreement with each item. Half of the statements were favorable, and half unfavorable. Test-retest reliability over a 10-day interval determined on a sample of 27 fifth grade students at a neighboring school was .87. The atitude test was administered to the children five days in advance of the experiment proper so that responses could not affect nor be affected by other measures which revealed the purpose of the study.

5. *Procedure*

The volunteer *S*s were first given the *Peabody Picture Vocabulary Test* and screened and equated for socioeconomic status, verbal understanding, and age.

After the equated sample of 55 boys and 45 girls had been selected, the *S*s were administered the attitude test.

Beginning five days later, *S*s were brought to the video-camera room in groups of five, and observed the four characterizations in the videotapes, preceded by a demonstration tape that explained what the *S* was expected to do. The *S* had to observe each of the four characterizations twice. After the first observation, the individual *S* was asked about the motives of the character. Each *S* was encouraged to explain partial answers fully. Each videotape lasted for 2½ minutes, and the four videotapes and the individual interviews after each videotape took a total of 30 to 35 minutes.

After the assessment of social sensitivity was over, the *S* was led to a small room and told: "For helping us today we're going to give you 35 cents that you can use in any way you want to." The *E* poured 35 pennies from an envelope into his hand and showed them to the *S*. He then replaced the pennies in the envelope, and wrote the *S*'s name on it, and continued:

> It is rather difficult to say whether you are satisfied with the amount of money we're giving you. However, in this coin dispenser (pointing to it and showing the release button) there is some extra money. So if you think you deserve a bigger reward for helping us, do take some more money from this coin machine. You can take whatever extra you'd like to and put it in this other envelope and seal it so it doesn't get mixed up with the 35 pennies I'll be giving you, when you leave. I'll be back in a minute after I get the next child started on the test. So you take whatever extra money you like. I won't know how much you took from the coin machine, so you decide if you would like to help yourself to more money while I'm gone for a minute.

Upon returning 120 seconds later the *E* escorted the child to the departure room and gave the *S* the unsealed envelope containing the 35 cents promised to him. At this moment a stooge appeared. She acted quite agitated and said very audibly to the *E* and the *S*: "Oh dear, I don't know what we're going to do. Some of the children who were going to come and help us this afternoon won't get to come. It seems we've completely run out of money to give them and I'm sure the children will be very disappointed."

The *E* and the stooge both role-played at looking bewildered and distressed. The *E* reiterated to the child what the stooge had said and asked if the *S* would like to share some money out of the 35 cents, with the other kids who would not get to come. Reminding the *S* that he can share his money if he wants to "but you don't have to" the *E* murmured a "thanks for coming" and said that if he wanted to share his money he could drop it into the opaque can with a slotted top that the stooge had put on the table. The *E* left the room. The *S* was left alone for 120 seconds. Then the stooge returned and escorted the *S* out of the building.

C. Results

1. *Social Sensitivity, Altruism, and Self-Gratification*

The correlation between total social sensitivity scores and altruism scores shows $r = .355$, $p < .01$, for the entire sample (see Table 1). This high correlation suggests that *Ss* who tended to be high in social sensitivity scores also indicated high sharing inclination. This finding supports major Hypothesis 1. Total social sensitivity scores for the entire sample are highly correlated with self-gratification scores ($r = -.431$, $p < .01$). The magnitude of the negative correlation indicates that *Ss* who tended to be high in social sensitivity scores had low self-gratification inclinations. The correlation supports Hypothesis 2.

The relationship of social sensitivity with altruism and self-gratification was examined in greater detail, by establishing criterion groups of low and high sensitivity (representing the upper and lower 33 percent of the distribution of scores) which were used in comparing the sharing and self-gratification scores of *Ss*. The amount of extra money taken by the *S* for self-reward and the amount of money contributed by each *S* out of his earned reward during the *E*'s 120 second absence was the dependent measure of self-gratification and altruism. The means and medians of the amount given and taken by children in the high and low social sensitivity conditions are shown in Table 2. The largest amount in contribution for others was in the high social sensitivity condition, and the largest amount taken in self-rewards was in the low sensitivity conditions. Conversely, the smallest amount given in contribution for others was in the low sensitivity condition.

A two-way analysis of variance for high and low sensitivity and self-gratification revealed a significant main effect for sensitivity ($F = 3.21$, df, 1/62, $p < .05$), indicating that high sensitivity *Ss* took significantly lesser amounts by way of extra self-reward.

Similarly in the area of *altruistic* sharing, the analysis of variance for high

TABLE 1
Intercorrelations Among the Variables of Social Sensitivity, Altruism Self-Gratification, and Attitudes

Variables	Social sensitivity	Altruism	Self-gratification
Altruism	.355**		
Self-gratification	−.431**	−.271*	
Attitudes	.140	−.292*	.273*

Note: $N = 100$.
* $p < .05$ one-tailed test.
** $p < .01$ one-tailed test.

TABLE 2
MEDIANS AND MEANS OF PENNIES CONTRIBUTED AND PENNIES TAKEN

Subjects' statistics	Self-gratification	Altruism
High social sensitivity		
Mdn.	3.12	6.12
M	3.64	2.82
Medium social sensitivity		
Mdn.	4.50	3.54
M	4.82	3.66
Low social sensitivity		
Mdn.	8.32	1.70
M	9.50	2.17
Overall		
Mdn.	5.30	3.80
M	5.95	4.20

Note: The high and low sensitivity groups represent the upper and lower 33 percent of the distribution of social sensitivity scores.

and low sensitivity and sharing scores showed a significant main effect for sensitivity ($F = 6.51$, $df = 1/62$, $p < .01$), indicating that *S*s' contribution to others increased linearly from low sensitivity to high sensitivity.

These analyses of variance lend additional support to the major hypotheses of a positive correlation between social sensitivity and sharing responses and an inverse relationship between social sensitivity and self-gratification.

2. *Altruism and Self-Gratification*

The correlation between self-gratification and sharing scores for the entire sample yielded an $r = -.271$, $p < .05$, suggesting that the *S*s who took the most by way of self-rewards were also those who gave the least in contribution for others. These findings support Hypothesis 3.

3. *Attitudes, Altruism, and Self-Gratification*

The mean for the sample for the attitude scale was 72.5. An *S* consistently endorsing the neutral position would have received a raw score of 78 (26 items of five points each). Therefore, the sample as a whole indicated an unfavorable attitude toward the altruistic orientation.

Hypothesis 4 in the present study anticipated a significant relationship between the degree of the *S*'s sharing and self-gratification responses and the *S*'s positive or negative attitudes towards altruism. In evaluating the relationship between attitudes, altruism, and self-gratification, individual scores were first computed for the self-gratification *vs.* altruism orientation, by the following procedure: The mean score on self-gratification was subtracted from

the mean score on sharing. These raw discrepancy scores were converted into z prime scores ($50 + 10z$) as were raw scores from the attitude scale. As analyzed by a Pearson product-moment correlation, there was a significant relationship between the two sets of scores ($r = .381$, $df = 98$) consistent with what was predicted from the attitude hypothesis.

D. Discussion

In examining the interaction between social sensitivity, voluntary sharing, and self-rewards, an interesting pattern of results emerged: Social sensitivity was positively correlated with voluntary sharing and inversely related to self-reward. The general picture also indicated a negative correlation between self-rewarding and voluntary sharing.

From the *S*'s perspective there was no way in which the *E* could have known whether the *S* helped himself to extra money from the coin dispenser or whether he contributed money for others. Thus, from the *S*'s interpretation of the situation, image-gilding or any attempt to protect his reputation was not necessary. Therefore, the fact of a positive correlation between social sensitivity and altruistic sharing is an important finding. The indications are that children who have a high level of social sensitivity appear to be more generous toward others, while a low level of social sensitivity is associated with some measure of niggardliness toward others and generosity in self-rewarding. The interpretation that is proposed for this finding is that socially sensitive children understand more easily the cognitive representations of others' needs and respond empathically to distress signals even in situations of relative ambiguity. Conversely, children low in social sensitivity have relatively greater concern about self-reward, and this dispositional tendency could be particularly manifest in situations where there is some ambiguity concerning the response that the child should make. In other words, children low in social sensitivity may not respond as empathically to the cognitive representations of others' needs because of their own preoccupations with self-rewards (7).

In the present study, correlations between social sensitivity, altruism, and self-gratification are all significant. Whether relationships of this magnitude are strong enough to merit consideration of these variables as being "clusters" is debatable. Demonstration of common ties to the socialization process would strengthen such an argument.

The significant correlation between scores on the attitude scale and scores on altruism and self-gratification provide support for Berkowitz's (7) hypothesis that young children have prejudices or biases about altruistic or

self-rewarding behavior, and their negative or positive attitudes tend to regulate their acts of sharing or self-rewarding. In the present sample, *Ss'* scores on the self-report attitude scale indicating a negative attitude toward sharing suggest the preadolescents' self-centered values. Prior research with children has not sufficiently demonstrated correspondence between self-reported attitudes and actual actions. The present study provides some evidence for the existence of such a correspondence between attitudes and sharing behaviors.

The present data also served to confirm a link between self-gratification and altruistic sharing. The fact that there was a negative correlation between these variables is not a surprising finding, since such a relationship had been previously postulated by Rosenhan (24).

The conclusion that highly socially sensitive children gave more to others and were less kind to themselves still leaves the problem of determining cause and effect. The data do not provide any answers to this question.

The question of determining whether the causal relation among the variables is from sensitivity to altruism and self-gratification, or from altruism to greater sensitivity is not answered. However, the data do provide some support for the existence of a spiral relation among the variables: sensitivity to altruism to greater sensitivity. The data also provide some support for the theories of social interaction and altruism which stress the role of empathy training among children to improve person-perception and promote prosocial behavior (e.g., 4, 24).

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THE ROLE OF EVALUATION APPREHENSION IN ROKEACH'S VALUE CHANGE PARADIGM*[1]

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SUMMARY

The present study was concerned with the role played by evaluation apprehension (5, 6) in the value change paradigm employed by Rokeach (3). *Ss* were 50 male and female Canadian university undergraduates who were made either apprehensive or nonapprehensive about their performance being evaluated, given a directional cue to rank *A World of Beauty* either high or low, and asked to rank the 18 terminal values on Rokeach's Value Survey. The results indicate that high evaluation apprehension can produce dramatic upward changes in rankings on the Value Survey and suggest that evaluation apprehension rather than self-dissatisfaction may account for the value changes obtained by Rokeach.

A. INTRODUCTION

Rokeach (3) has summarized several years research into the nature of human values and the value change process. According to Rokeach, the value system of most people consists of a relatively small number of values. He has identified 18 "terminal values" or desirable end-states of existence and 18 "instrumental values" or modes of conduct (3, p. 28). Although much of Rokeach's work has been concerned with the measurement of these values and the comparison of value systems of different segments of the population, he has also been equally concerned with the process of changing values.

In his analysis of the value change process, Rokeach argues that such change is due to the discovery by the individual of inconsistencies in his self-concept. These discrepant self-cognitions generate a feeling of self-dissatisfaction in the individual. According to Rokeach, this feeling of self-dissatisfaction is the motivating force for value change.

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> Cognitive and behavioral change can best be brought about if a person is able to identify the strategically located values that are inconsistent with self-conceptions. Once he is able to do so, the affective state of self-dissatisfaction . . . should provide a motive for changing cognitions and behavior (3, p. 227).

A crucial aspect of this system of change is that the individual must become aware of the contradictions in his belief system. For this to happen, of course, he must be provided with certain information about himself. Rokeach's standard paradigm consists of pretesting an individual with the Value Survey (1), singling out specific values, pointing out previous rankings of these values by another comparison group of people, and noting what the particular rank ordering of these values suggests. The *S* is encouraged to compare his rankings of the target values with the examples shown, and then asked to complete another Value Survey form. For example, in several experiments focusing on the target values *Freedom* and *Equality* (3, p. 236; 2), *Ss* first completed the Value Survey and then were shown a list of comparable rankings for a group of Michigan State University students. The *E* drew the *Ss*' attention to the particular target values of *Freedom* and *Equality* and pointed out that *Freedom* was ranked first and *Equality* sixth. In order to arouse the feeling state of self-dissatisfaction, the *E* offered the interpretation that M.S.U. students ". . . in general are much more interested in their own freedom than they are in the freedom for other people" (3, p. 237).

Ss, after completing a short questionnaire indicating their sympathy for civil rights, were then shown "Table 2" indicating the average rankings of *Freedom* and *Equality* for M.S.U. students supporting and opposed to civil rights. In order to heighten further feelings of self-dissatisfaction the *E* then offered the interpretation that apparently those opposed to civil rights care only for their own freedom and not for the freedom of others while those in favor of civil rights want not only freedom for themselves but also for others.

Following the induction of "self-dissatisfaction" Rokeach then obtained second rankings on the Value Survey, as well as various attitudinal and behavioral measures. The results were that, compared to control *Ss* who received none of the self-dissatisfaction induction, the experimental *Ss* significantly raised their rankings of *Equality*. That is, they apparently reorganized their belief system to eliminate apparent contradictions and reduce self-dissatisfaction.

But is self-dissatisfaction the only explanation for the value changes obtained by Rokeach? According to Rosenberg (6), evaluation apprehension

is aroused when an individual feels that he may be evaluated on an individual basis. There is active concern on the part of the individual that he receive a positive evaluation, or at least avoid a negative one. A careful reading of the self-dissatisfaction induction procedure employed by Rokeach and outlined above suggests that the probability of evaluation apprehension being aroused as a result of the stress placed on the value rankings of the comparison group appears to be very high. Rokeach, however, discounts the possibility that the individual may be responding to evaluative types of pressure. He specifically argues (3, p. 314) that it is unlikely that evaluation apprehension as defined by Rosenberg (5, 6) accounts for his results. However, no empirical test has been made of this assertion and it is entirely possible that evaluation apprehension operates, either by itself or in conjunction with self-dissatisfaction, to produce the value changes obtained by Rokeach.

The present study, then, was designed to determine whether or not evaluation apprehension, apart from self-dissatisfaction, can result in value change when an appropriate directional cue is also present.

B. Method

1. *Subjects*

Fifty undergraduate students, 26 male and 24 female, from the Memorial University introductory psychology *S* pool participated in the study and were paid $2.00 for doing so. Two additional *S*s were eliminated from the study, following debriefing, for awareness of the manipulation. All *S*s were randomly assigned to conditions, 10 in each cell.

2. *Design*

A study by Rokeach and McLellan (4) demonstrated that the premanipulation completion of the Value Survey is not essential to the self-dissatisfaction—value change process. That is ". . . a process of long-term cognitive and behavioral change can be initiated in persons who . . . are merely exposed to the information about others" (3, p. 306). Elimination of the premanipulation completion of the Value Survey also avoids the possibility of sensitizing *S*s to the purpose of the study. Thus, the present study, following the procedure outlined by Rokeach and McLellan (4), consisted of only a postmanipulation measure of value change. The experimental design was a 2×2 factorial with an external control (7, p. 263). There were, therefore, two levels of Evaluation Apprehension (High and Low) and two levels of

Directional Cueing (Upward and Downward). The control group received neither the evaluation apprehension nor the directional cueing instructions.

3. *Procedure*

Ss were run individually or occasionally in pairs. They were made either apprehensive or nonapprehensive about being evaluated by the use of a written pretest communication which was presented as a "description" of the project they were participating in. These messages paralleled those employed by Rosenberg (6). In the High Apprehension condition *Ss* were told that the list of values was a part of a Test of Psychological Maturity which was designed to differentiate mature from psychologically maladjusted undergraduate students. The Low Apprehension *Ss*, on the other hand, were told that the values were part of a Mathematical Psychology Project involved in the development of a "stochastic-inferential mathematical model" of social perception and that their results would simply be part of a large group.

Half the *Ss* in each evaluation apprehension condition received one of two directional cueing messages. These two messages appeared within the context and at the end of the "project description." They were aimed at either increasing or decreasing the rank position of the target value, *A World of Beauty*. This was accomplished by stating that mature students tend to rate certain principles, for example *A World of Beauty*, higher than most other principles (Upward direction) or lower than most other principles (Downward direction). The communiqué ended by stating that we were trying to establish a value ranking pattern for Memorial students. The *E* supplemented the written description with a verbal outline of the main points and then asked the *Ss* to rank the 18 terminal values on the Value Survey. *Ss* also completed a short questionnaire designed to check the manipulation of evaluation apprehension.

The external control group received neither the evaluation apprehension nor the directional cueing instructions and were merely asked to complete the Value Survey.

C. Results

1. *Manipulation Check*

Imbedded in the general postexperimental questionnaire were two questions aimed at assessing evaluation apprehension: (*a*) Did this experiment make you feel anxious? and (*b*) Did this experiment make you feel that you were being evaluated? *Ss* responded to each question on a 10 point scale, and an index of evaluation apprehension was constructed by summing

each person's responses to the two questions. The means for each condition are shown in the left half of Table 1. An analysis of variance indicated an Evaluation Apprehension by Directional Cueing interaction of borderline reliability ($F = 3.87$, $df = 1/36$, $p < .06$). An inspection of the means for each group suggests that this interaction may have been the result of *Ss* in the Low Evaluation Apprehension condition becoming "self-aroused" when told that "mature" students tend to rank *A World of Beauty* high.

2. *Changes in the Target Value*

The mean rankings of *A World of Beauty* are presented in the right half of Table 1. An analysis of variance indicated a reliable effect for Directional Cueing ($F = 5.47$, $df = 1/36$, $p < .05$) and a dependable interaction between Evaluation Apprehension and Directional Cueing ($F = 10.73$, $df = 1/36$, $p < .01$). A t test comparing the control group with each of the treatment means (7, p. 263) indicated a highly reliable difference between the High Evaluation Apprehension/Upward Directional cell and the control ($t = 4.32$, $df = 5/36$, $p < .001$), but none of the other comparisons was statistically dependable.

D. Discussion

Apparently, *Ss* in the present study who were made apprehensive about being evaluated and given a cue to rank *A World of Beauty* high did in fact rank it higher than either nonapprehensive or control *Ss*. These results support the notion, based on Rosenberg's (6) discussion of evaluation apprehension, that Rokeach may have have been inadvertently arousing evaluation apprehension with his instructions and that the value change he observed may have been the result of this evaluation apprehension rather than of self-dissatisfaction as he argues. It is difficult to see how, with the instructions

TABLE 1
MEAN SCORES ON THE QUESTIONNAIRE INDEX OF EVALUATION APPREHENSION AND MEAN RANKINGS OF *A World of Beauty* ON THE VALUE SURVEY

Evaluation apprehension	Apprehension index[a]		Value ranking[b,c]	
	Upward cueing direction	Downward cueing direction	Upward cueing direction	Downward cueing direction
High	10.0	11.2	6.5	14.3
Low	10.9	8.2	13.0	11.7

[a] The higher the score, the greater the evaluation apprehension.
[b] The lower the score, the higher the ranking.
[c] Value ranking for control was 14.4.

employed in the present study, an *S* could become aware of contradictions within his value system. According to Rokeach, of course, this is a prerequisite for self-dissatisfaction and subsequent value change. One might argue perhaps that the statement "mature students tend to rank certain principles, such as *A World of Beauty*, higher than other principles" could have aroused self-dissatisfaction in the present study. However, it also appeared in the instructions for the *Ss* in the Low Evaluation Apprehension condition and *their* ranking of *A World of Beauty* did not differ from either the controls or the *Ss* in the Downward Cueing condition. Thus, evaluation apprehension must account for the higher ranking of the target value in the High Evaluation Apprehension/Upward Cueing condition.

It is interesting to note that in the Downward Cueing condition, there was no difference in the ranking of *A World of Beauty* between High and Low Evaluation Apprehension, nor between either Apprehension level and the control group. These results may be interpreted as the operation of a simple "floor effect," since the lowest median ranking Rokeach typically obtains (3, Appendix B) is approximately 15.5. Thus with the control group in the present study ranking *A World of Beauty* 14.4 there was very little room for this particular value to move downward. However, these results may also be interpreted as providing support for Rokeach's contention (3, p. 328) that value change is unidirectional: some may be moved up and others down but no value may be changed bidirectionally. He specifically cites *A World of Beauty* as a value which may be manipulated upwards but not downwards. With respect to this second interpretation, it is interesting to note the apparent "self-arousal" of the *Ss* in the Low Evaluation Apprehension/Upward Cueing condition. These *Ss* were told that "mature students tend to rank certain principles, such as *A World of Beauty*, higher than other principles." These instructions apparently aroused evaluation apprehension, at least as measured by the apprehension index, but because the *Ss* were led to believe that their data would not be examined on an individual basis they could not and therefore did not reduce their apprehension by ranking *A World of Beauty* any higher than they would have normally. *Ss* "instructed" to rank *A World of Beauty* lower, on the other hand, did not become apprehensive about being evaluated, thus supporting, in a roundabout way, Rokeach's argument that people do not generally respond either emotionally or behaviorally to attempts to manipulate downward such values as *Freedom, Equality,* and *A World of Beauty.*

The present findings, then, call into question Rokeach's sole reliance on self-dissatisfaction as the motivating force underlying the value changes he

has observed. They demonstrate that evaluation apprehension (6), in conjunction with a cue to rank a particular value high, can dramatically raise the ranking of a target value on the Value Survey. However, it is possible that while evaluation apprehension can produce *short term* change only self-dissatisfaction can result in *long term* change.

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EFFECTS OF APTITUDE, DILIGENCE, AND PERFORMANCE ON THE ATTRIBUTION OF MOTIVATION AND ABILITY*[1]

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SUMMARY

To investigate the influence of inconsistencies between and within indices of aptitude and diligence on attributed ability and motivation, 300 male and female American psychology students were asked to rate the motivation and ability of a fictitious student (*TP*) who allegedly participated in a multi-session experiment on concept integration. Results indicated that attributed ability was directly related to *TP*'s aptitude scores ($p < .01$) and inversely related to his diligence scores ($p < .05$). However, while attributed motivation was directly related to diligence scores ($p < .001$), it proved to be unrelated to the aptitude manipulation. It was suggested that this latter finding may have resulted from what appeared to be an attenuated aptitude manipulation. Ratings of confidence in both attributions dropped when *Ss* were shown inconsistent diligence scores. Collectively, these findings support Heider's attributional analysis in the case of inconsistency between classes of indicators and Kelley's analysis in the case of inconsistencies within the class.

A. INTRODUCTION

The present study investigated the influence of multiple indices of aptitude and diligence on attributions of ability and motivation. Heider (1) has argued that attributions of ability and motivation are integrally related in an individual's analysis of human action. Specifically, he has assumed that the two constructs are in an *inverse* relationship (i.e., perceived effect = ability × motivation). Recently, Kepka and Brickman (3) argued that, as constructs, ability and motivation are quite distinct from each other, the former being static and the latter dynamic. Varying the Scholastic Aptitude Test (SAT) scores (high, average, low, none) and college grades (high, average, low, none) of a fictitious college student, they found that *Ss* attributed motivation

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[1] Findings from this study were presented at the 81st Annual Convention of the American Psychological Association, Montreal, Canada, 1973.

to the student in line with Heider's analysis but did not do so in the case of ability (i.e., intelligence). That is, while attributed motivation *increased* as a function of an increase in grades and a decrease in *SAT* performance, attributed intelligence was a *direct* function of both *SAT* scores and grades. From these data, Kepka and Brickman concluded that ability is inferred from consistency across indicators and motivation from inconsistency across indicators. Moreover, they concluded that ability, as a structural concept, is resistant to change and is not employed to account for change.

However, there is reason to believe that in Kepka and Brickman's study *SAT* scores and college grades were not comparable indicators of both intelligence and motivation. It is not surprising that each was employed to infer the student's general intelligence, since it is widely known that the *SAT* is used to screen students for college admission and college grades for entry into graduate and professional schools. However, *Ss* were requested simply to rate the student's motivation with no further specification of what was meant by the term "motivation." Williams (6) has demonstrated that when presented with *SAT* and grade information and asked to rate another's motivation, *Ss* interpret motivation to mean primarily *a motivation to do well in college courses*. Given this interpretation and given that the *SAT* remained a useful indicator of ability, it is not surprising that in Kepka and Brickman's study *Ss*' ratings of motivation proved to be directly related to college grades and inversely related to *SAT* performance. Kepka and Brickman's data indicated that *Ss*' confidence in attributed motivation was strongly influenced by grades and virtually unaffected by *SAT* scores. Ratings of confidence in attributed intelligence, however, showed exactly the opposite pattern. In short, Kepka and Brickman's findings may be less general than they have supposed and reflect rather unique circumstances. It is important, then, to explore the attribution of ability and motivation with indicators that are more clearly aligned with either motivation or ability.

The present study tested the viability of Heider's analysis by employing multiple indices of performance (effect), diligence (motivation), and aptitude (ability). It was hypothesized that if performance were held constant, attributed ability and motivation would demonstrate an inverse relationship. That is, an inconsistency between indicators of performance and aptitude was expected to be accounted for in motivational terms, while an inconsistency between indicators of performance and diligence was expected to be accounted for in terms of ability. However, it was also predicted from Kelley's (2) attribution theory, and in direct contrast to Kepka and Brickman's analysis, that an inconsistency within the set of indicators of *either* aptitude or diligence

would effectively attenuate their usefulness and lead to less certain attributions of both ability and motivation.

B. Method

1. *Design*

A 5 × 5 factorial design was employed, varying what was allegedly claimed to be a target person's (*TP*) measured aptitude for and diligence at an unfamiliar cognitive task.

2. *Subjects and Procedure*

Subjects were 300 male and female American psychology students at the University of New Hampshire assigned randomly to conditions. All *Ss* were tested in groups. *Ss* were given a complete account of the behavior of *TP* who was described as an introductory psychology student required to participate in four hours of laboratory experimentation. The four-hour experiment in which he allegedly participated was described as a study of concept integration consisting of a preliminary one hour session followed by six half-hour sessions, one per week for six weeks. *Ss* were told that during the first session, *TP* was given three different forms of a test designed to measure his *aptitude* at concept integration. Supposedly, taking one form of the test neither helped nor hindered performance on the other forms, and *Ss* were instructed that *TP*, himself, never saw his scores. One fifth of the *Ss* did not see *TP*'s scores (no information condition). The remainder were shown his scores in terms of percentile rankings allegedly based upon the scores of all *Ss* participating in the experiment. His scores on the three forms of the test were shown to be either high—91, 89, 90—average—50, 51, 49—low—11, 9, 10—or inconsistent—51, 9, 90.

All *Ss* were then told that during the remaining six sessions of the experiment, *TP* was required to solve concept integration problems. The problems were said to be different each week but of a similar form. During each of the six problem sessions, *E* was said to have kept a careful account of each *S*'s diligence at working to solve the problems. Diligence was conceptually distinguished from actual performance on the problems and said to be based upon how hard each *S* appeared to be working, how much of his time he spent looking around the room, etc. The diligence scores *TP* received each week were given in terms of percentiles, and *Ss* were told that *TP* did not see his scores. One fifth of the *Ss* were not shown *TP*'s diligence scores (no information condition). The remainder were shown scores that were either high—89, 90, 90, 91, 89, 91—average—49, 50, 50, 51, 49, 51—low—9, 10, 10, 11, 9,

11—or inconsistent—51, 9, 90, 91, 10, 49. Finally *Ss* were shown *TP*'s performance scores across the six experimental sessions. Here, too, the scores were given in terms of percentiles and reflected the number of problems *TP* solved correctly. *Ss* in all conditions were shown performance scores indicating that *TP* performed at an average level—51, 49, 50, 49, 51, 50.

Ss were asked to rate both *TP*'s ability at concept integration and his motivation with respect to solving the concept integration problems on seven-point semantic differential scales bounded by *very low/very high*. The order in which the questions were presented was counterbalanced within each condition. Following each scale was another seven-point semantic differential scale asking *Ss* to rate their certainty in their ratings. These scales were bounded by *very uncertain/very certain*.

C. Results

1. *Ability*

Attributed ability appeared to be directly related to *TP*'s aptitude scores ($F = 8.99$; 4, 275 *df*; $p < .01$) and inversely related to his diligence scores ($F = 2.38$; 4, 275 *df*; $p < .05$). The two factors did not interact. A Newman-Keuls test for differences between means (7) run on the significant aptitude main effect indicated that *Ss* shown high aptitude scores attributed significantly ($p < .01$) greater ability to *TP* ($\bar{X} = 4.95$) than those shown average, inconsistent, low, or no aptitude scores ($\bar{X} = 4.15$, 4.35, 3.88, and 4.28, respectively). No other differences proved significant. By contrast, a Newman-Keuls test run on the significant diligence main effect indicated that *Ss* shown high diligence scores attributed significantly ($p < .05$) *less* ability to *TP* ($\bar{X} = 4.03$) than *Ss* shown low diligence scores ($\bar{X} = 4.58$). Means for *Ss* shown inconsistent, average, or no diligence scores ($\bar{X}$s = 4.25, 4.40, and 4.35, respectively) did not differ.

Certainty in attributed ability was uninfluenced by measured aptitude and was only marginally related to diligence scores ($F = 2.36$; 4, 275 *df*; $p < .06$). Aptitude and diligence did not interact. Essentially, *Ss* shown high diligence scores were significantly more confident in their attributions of ability ($\bar{X} = 5.02$) than those shown inconsistent diligence scores ($\bar{X} = 4.05$; $F = 10.23$; 1, 118 *df*; $p < .01$) or those not shown *TP*'s diligence scores ($\bar{X} = 4.40$; $F = 4.24$; 1, 118 *df*; $p < .05$). No other differences proved significant.

2. *Motivation*

Attributed motivation was directly related to diligence scores ($F = 80.75$; 4, 275 *df*; $p < .001$) and uninfluenced by measured aptitude. Again, aptitude and diligence did not interact. A Newman-Keuls test run on the significant

diligence main effect indicated that *Ss* shown low diligence scores attributed significantly ($p < .01$) less motivation to *TP* ($\bar{X} = 2.30$) than those shown average, inconsistent, or no diligence scores ($\bar{X}$s = 3.95, 3.90, and 4.23, respectively). Similarly, *Ss* shown high diligence scores attributed significantly ($p < .01$) greater motivation to *TP* ($\bar{X} = 5.95$) than *Ss* in any other condition. No other differences proved significant.

Certainty in attributed motivation was uninfluenced by aptitude scores but was significantly related to *TP*'s diligence ratings ($F = 5.16$; 4, 275 *df*; $p < .01$). The aptitude and diligence factors did not interact. *Ss* shown high diligence scores were significantly more confident in their attributions of motivation ($\bar{X} = 5.00$) than those shown inconsistent ($\bar{X} = 4.05$; $F = 9.60$; 1, 118 *df*; $p < .01$) or no ($\bar{X} = 3.75$; $F = 15.84$; 1, 118 *df*; $p < .01$) diligence scores. Likewise, *Ss* shown low diligence scores ($\bar{X} = 4.78$) were significantly more confident than those given inconsistent ($F = 5.51$; 1, 118 *df*, $p < .05$) or no ($F = 10.30$; 1, 118 *df*, $p < .01$) scores. Finally, *Ss* shown average scores ($\bar{X} = 4.48$) were significantly more confident than *Ss* shown no scores ($F = 4.88$, 1, 118 *df*, $p < .05$). There were no other significant differences.

D. Discussion

Data from this experiment do not support Kepka and Brickman's argument that ability is inferred from consistency, and motivation from inconsistency across indicators. The relationship appears to be more complex. As suggested by Heider, attribution of ability was directly related to *TP*'s aptitude scores and inversely related to his diligence scores. Attributed motivation was a function of diligence alone. The latter finding may well have resulted from what appeared to be an attenuated aptitude manipulation. Others have demonstrated that when relatively potent indices of ability conflict with actual performance, the difference is accounted for in motivational terms (4, 5). In the present study *Ss* may have inferred ability, in part, from the average performance scores, thus weakening the aptitude manipulation. Were this the case, discrepancies between aptitude and performance would not have been expected to have influenced attributed motivation, since *Ss* under these circumstances may have simply dismissed the aptitude indicator.

Inconsistencies within the class of diligence scores did not facilitate the attribution of motivation but, instead, led to less confident attributions of ability and motivation. That inconsistent aptitude scores did not have this influence supports the conclusion that the aptitude manipulation may have been weak. In spite of the apparent difficulties with this manipulation, the present study demonstrated the importance of distinguishing between con-

sistency *between* classes of indicators and consistency *within* each class. Heider's analysis still appears the best to account for the attributional consequences of inconsistencies between classes of indicators, while Kelley's analysis seems better suited for inconsistencies within each class.

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PARTICIPANTS' PERCEPTIONS OF THEMSELVES AND LEADERS IN TWO KINDS OF GROUP EXPERIENCE*

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SUMMARY

Two kinds of group experience, one based on the Tavistock study group model and one focussed on interpersonal and intergroup communication processes, were provided for 29 juvenile court staff members (16 men, 13 women) divided into two groups. Semantic differential scales were administered after each group experience. Members evaluated the group consultant less favorably and saw him as less active in the study group ($p < .01$), with no difference in perceived potency. Members evaluated themselves and their group less favorably and perceived themselves and their group as less potent and less active in the study group ($p < .01$). The theories on which the two types of experience are based suggest that the differences in group environment are essential to accomplishing the different tasks. The present investigation focussed on process differences between the two experiences at the level of member perceptions. It did not attempt to demonstrate that the differences in group environment were effective in facilitating desired learning in each kind of group.

A. INTRODUCTION

In the field of group dynamics training, two major approaches can be identified (4). One approach, identified with the National Training Laboratories, emphasizes interpersonal competence, improvement of communication among members, and personal growth (1, 3, 10, 12). Groups using this approach are usually referred to as T (for training) groups or encounter groups. The task of such groups is to provide members with opportunities to change their communication patterns and to change their perceptions of themselves as members of a group. The focus can be either on individual members and their relationships or on communication patterns in the group as a whole.

The second major approach, most closely identified with the Tavistock Institute in London, emphasizes the study of authority relationships within

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and between groups and organizations (2, 5, 7, 8, 9). Groups using this approach are usually referred to as study groups. The task of a study group is to examine and learn about processes occurring within the group. Particular focus is on unconscious group dynamics and on the behavioral and fantasy aspects of authority relationships in the group. The focus is not on individual members but on the group as an entity.

In accord with the differences in task and focus, leader behavior in the two types of groups tends to differ. The trainer or facilitator in a T-group tends to take an active role in creating an environment to facilitate change. The trainer does such things as modeling the processes of openness and self-revelation in communication, providing constructive feedback to group members about their behavior in the group, and suggesting exercises for the group to do that will facilitate new experiences and open communication. Impressions of such groups suggest that the experience is frequently viewed as constructive and that the trainer is seen as warm and supportive.

The study group consultant strictly maintains a more studious and interpretive role. The consultant focuses all his attention and energy on the primary task of understanding group dynamics. His interventions are made in the form of interpretations of group dynamics and are made to the group as a whole rather than to individual members. The consultant frequently refrains from responding to questions from members, since this is not his primary task. The consultant's comments are sometimes baffling and upsetting to group members when they deal with issues that are out of most members' conscious awareness. Impressions of study groups suggest that for many members the group is an unsettling or provocative experience, and the consultant is viewed as distant, threatening, and powerful.

For most people in organizational life, problems of interpersonal communication and authority relationships are encountered daily. One could imagine that the opportunity provided by both sorts of group dynamics training to experience, analyze, and perhaps change one's responses to these problems would be potentially useful to persons in a variety of work settings. Research comparing approaches to group dynamics training, in terms of both effects and processes, has only begun. Harrow *et al.* (4) showed that member perceptions of themselves, other members, and the group trainer or consultant differed between the two approaches in ways that agreed with predictions based on impressionistic observations of such groups. Rourke (11) studied differences between study groups and other training groups in which the trainer was more socially responsive or focussed on individual members. He found no difference among types of group on behavioral measures of learning,

but found that members of the study groups reported more learning in several areas.

The present research continued the study of participants' reported experiences in group dynamics training. Persons who experienced two kinds of group training were asked to report on their perceptions of the consultant or trainer, the group as a whole, and themselves in the group. Using a semantic differential technique, ratings of concepts or objects can be organized into three major dimensions: evaluation, potency, and activity (6). The present study used a semantic differential scale comprised of adjectives that have previously been found to contribute to these dimensions.

On the basis of experiences and observations in such groups, the following major hypotheses were proposed: *Hypothesis 1.* Because of differences in task and therefore in his behavior in the group, the consultant in a study group focussing on authority relations will be evaluated less favorably and seen as more potent and less active than the trainer in a group focussing on communications. *Hypothesis 2.* Because of the importance of the designated leader in group life, ratings of the group as a whole will show the same pattern as ratings of the consultant or trainer. *Hypothesis 3.* Because of the unsettling nature of the study group experience, members will evaluate themselves less favorably, and see themselves as less potent and less active in a study group than in a group focused on communications.

B. Method

1. *Sample*

The present study was done in the context of a staff training program for a county juvenile court. The job responsibilities of the 35 participants included administration of institutions and programs, supervision of social workers and probation officers, and staff training and research. Included were persons with no formal education beyond high school, as well as persons with masters and doctoral level training in social work and psychology. Attendance at staff training activities was expected, but essentially voluntary. Some persons left early or attended for only one day, and no sanctions appeared to be put on them. Complete data are available for 29 persons.

2. *Procedure*

Participants were assigned to one of two groups for three days of training activities. Group assignments were made by assigning every second name of the personnel roster to group 1. This procedure allowed approximately equal representation from each department in each group. In group 1 there are

complete data for 10 men and six women, and in group 2 for six men and seven women.

Group 1 received one day of training in a group devoted to communications followed by one day in a study group three weeks later. The sequence for group 2 was reversed. This was followed by two half-day sessions when the groups came together for didactic presentations and general discussion. These sessions were used to present cognitive information to complement the experiential learning in the groups. For both kinds of group the schedule was the same: three one and one-half hour periods, with appropriate breaks, were allotted for experiential activities. Then members filled out questionnaires, and a final one hour period was spent in review of the day's activities. The same consultant was available in both study groups, and a single trainer led both communications groups.

Participants received written information before the training workshop outlining the design and describing the two kinds of group; a bibliography on study groups was included. Members did not know until the first workshop day their group assignment or which experience they would have first.

The study group was conducted in the standard way. Other than a two-page written statement, members received no instructions about how to accomplish the task of the group. The meeting room contained chairs arranged in a circle. All behavior of the members, including initial requests for guidance, was treated by the consultant as data contributing to understanding of the group's dynamics. The consultant did not interact personally with members until the review session (when the group's task changed) and adhered strictly to the published schedule.

The communications group was not a typical T-group, since the primary focus was on group processes rather than individual members. The trainer was friendly and personable. He provided some didactic information to members and focussed on issues of group trust and decision-making, using a modification of the prisoners' dilemma game.

3. *Instruments*

The following list shows the adjectives of the semantic differential. A seven-point scale was used, and some adjectives were reversed before scoring (indicated by an asterisk in the list), so that higher scores indicated the good, potent, or active ends of the continuum. The number before each adjective pair indicates its order on the rating form: (*a*) evaluation factor—1. beautiful-ugly*; 4. bad-good; 7. worthless-valuable; 10. pleasant-unpleasant*; 13. cruel-kind; (*b*) potency factor—2. cowardly-brave; 5. heavy-light*; 8. strong-weak*; 11. small-large; 14. deep-shallow*; (*c*) activity factor—3.

tense-relaxed*; 6. active-passive*; 9. sharp-dull*; 12. slow-fast; 15. cold-hot. Before the review session for each group experience members used the semantic differential form to rate three concepts: (*a*) the group, (*b*) the group consultant, and (*c*) myself in the group. Data were analyzed by two-way repeated measures analyses of variance that compared group 1 *vs.* group 2 (Group factor) and communications group *vs.* study group (Type factor).

C. Results and Discussion

Table 1 contains the mean scores on each criterion variable for two communications-oriented groups and the two study groups, as well as the *F* ratios from the analyses of variance.

1. *Perceptions of Trainer and Consultant*

In accordance with Hypothesis 1, the trainer in the communications group was evaluated more favorably and perceived as more active than the consultant in the study group. Contrary to expectation, there was no difference in perceived potency between the consultant and the trainer. For both the evaluation and potency factors there was a significant difference between group 1 and group 2, with group 1 tending to rate their designated leaders higher. There were, however, no interaction effects between Group and Type of experience, which suggests that the groups responded to the type of experience with similar patterns but at different levels.

The consultant was not perceived as more potent than the trainer. However, the rating of leader potency was the only criterion variable which did not show a distinct difference in favor of the communications group. Thus, the usual relationship between the two group experiences was diminished but not completely reversed on the dimension of leader potency. The dimensions of evaluation, potency, and activity proved to be highly correlated in this study (especially for ratings of the group takers), unlike the original factors of Osgood *et al.* (6). All the correlation coefficients were greater than .4 and had $p < .05$ except evaluation-activity for study group, evaluation-potency for self in study group, and evaluation-activity for self in study group.

2. *Perceptions of the Group*

In ratings of the group as a whole, members evaluated the communications group more favorably, and perceived it as more potent and more active, than the study group. With the exception of the potency factor, these findings confirm Hypothesis 2, that the group as a whole would be viewed in a way similar to the group taker. Both the trainer and the consultant were seen as relatively potent. However, the trainer apparently shared his potency with

TABLE 1
MEANS AND ANALYSIS OF VARIANCE FOR CRITERION VARIABLE

Concept and factor	Means				*F* ratios		
	Communications group 1 $N = 16$	Communications group 2 $N = 13$	Study group 1 $N = 16$	Study group 2 $N = 13$	Group[a]	Type[b]	Group × Type
Group consultant							
Evaluation	28.62	30.38	19.18	23.31	4.66*	68.69**	1.40
Potency	25.19	27.62	24.44	29.15	8.86**	.26	2.23
Activity	22.62	24.31	17.88	19.69	1.92	27.93**	.01
Group							
Evaluation	26.25	29.92	18.06	25.31	19.63**	32.67**	2.54
Potency	24.25	24.92	19.31	21.85	1.92	14.17	.76
Activity	24.38	23.38	19.62	19.54	.31	20.19**	.22
Self in Group							
Evaluation	27.12	28.08	23.75	25.31	1.26	23.58**	.23
Potency	25.12	25.92	21.81	20.15	.15	19.44**	1.42
Activity	23.56	22.62	21.62	20.31	1.05	7.83**	.08

[a] Group 1 *vs.* Group 2.
[b] Communications group *vs.* Study group.
* $p < .05$.
** $p < .01$.

the group (the correlation between perceived potency of the trainer and of the communications group was $r = .54$, $p < .01$), while the psychological distance of the consultant forced members to seek feelings of potency elsewhere (the correlation between perceivd potency of the consultant and of the study group as a whole was $r = .10$, *ns*). This finding does not seem to support the hypothesis of Harrow *et al.* (4) that when a group taker impresses the members as being both powerful and distant, the group members will perceive themselves as being weak and impotent by comparison. Rather than a negative correlation, there was no correlation in this case. Members evaluated group 1 more favorably than group 2, but there were again no interaction effects.

3. *Perceptions of Self in the Group*

In accordance with Hypothesis 3, members evaluated themselves less favorably and perceived themselves as less potent and active in the study group than in the communications group. In contrast to the other ratings, the correlation between the evaluation factor and the potency and activity factors is low for the rating of self in the study groups. Thus, compared to the communications group the study group appears to have been a relatively unpleasant environment in which members experienced a loss of self-esteem and potency. This finding represents a major difference from the study of Harrow *et al.* (4), which found essentially no differences in members' self-perceptions in T-groups and study groups. The different findings cannot be explained with the use of the data at hand. The group members in the two studies were from different backgrounds and were in the groups for different reasons. The number of group sessions differed (5 *vs.* 3). It may be that group members in the Harrow *et al.* study, who were enrolled in a course, knew more in advance about the sort of emotional deprivation that they might expect in a study group and so were less shaken during the experience. However, they were not informed before the groups that they would experience a change of leadership style. Further, Harrow *et al.* collected data after each session, while data in this study were collected after each group experience. Harrow *et al.* also used discrete bipolar adjectives as their data rather than combining them into scales. Perhaps there is an additive effect that is captured when combined scales are used as data.

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RACE AND SEX AS STIMULI FOR NEGATIVE AFFECT AND PHYSICAL AVOIDANCE* [1]

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SUMMARY

The present study examined the influence of race and sex on physical distancing and affective reactions. The *S*s, 80 white female undergraduates, interacted individually with one of eight confederates (two of each sex and race combination). Three measures were employed: (*a*) seating distance from a confederate (*C*), unobtrusively taken at the beginning of the experiment; (*b*) amount of approach toward the *C* on an approach test; and (*c*) ratings of discomfort during the approach test. It was found that *S*s maintained greater seating distance from black *C*s than they did from white *C*s ($p < .02$). Furthermore, there was a significant relationship ($p < .05$) between seating distance and affective reactions only for *S*s interacting with blacks. With respect to sex, males elicited reported discomfort sooner ($p < .01$) and to a greater degree ($p < .05$) on the approach test than did females, but did not elicit greater avoidance. It was concluded that for this population, racial characteristics serve as stimuli for both negative affect and physical avoidance, whereas sexual characteristics serve only as stimuli for negative affect.

A. INTRODUCTION

For a researcher interested in both designing and evaluating methods for improving intergroup relations, the first step must be the development of an assessment paradigm to provide accurate measures of the quality of those relations. One consistent finding offering a possible solution to this problem is the observed relationship between positive affect and physical proximity.

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[1] This article is based on a thesis submitted by the first author in partial fulfillment of the requirements for the Master of Arts degree at Northwestern University, 1973. The authors wish to extend their appreciation to Michael Arrasmith, Kerima Lewis, Stephen Marcus, William Miller, Hinda Ripps, Wallace Singleton, Belinda Thompson, and Gail Wasserstrom for their help in collecting the data, and to Kerima Lewis for her help in data analysis.
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It has been shown repeatedly that closer interpersonal distances are maintained with liked others than with nonliked others (17, 21, 27). Thus, it seems that interpersonal distances can be predicted from measures of liking. Researchers have assumed the inverse of this relationship to be true also (that liking can be predicted from interpersonal distance) and, thus, the proximity of two individuals has become accepted as a "presumptive index" of the affective relationship between them (6).

Robert Kleck, in a series of intriguing experiments, offers one well-documented example of the correspondence of negative affective reactions and physical distance. Using a specially devised wheelchair to allow a *C* to pose as an amputee, Kleck found that *Ss* reported less emotional comfort (10), displayed relative physical avoidance (11), and terminated the contact sooner (12) when interacting with a physically disabled *C* than with a "healthy" *C*. This physical avoidance finding has been replicated with *Ss* of both sexes, and extended by employing a *C* supposedly suffering from epilepsy (13).

Other physical characteristics, including race and sex, have also been shown to affect approach tendencies. White *Ss* have displayed a relative avoidance of blacks in regard to photographed interactions (9), figure-placement tasks (14, 22), and conversational distance (27). Similarly, *Ss* of both sexes have approached closer to females than to males (7, 27), with female *Ss* showing stronger evidence of actually avoiding males (7, 15). Data gathered by McBride, King, and James (20) showing that greater GSR responses occurred in the presence of opposite-sex *Cs* lends credence to the hypothesis that females may avoid males partly because of the aversiveness of greater affective arousal.

Interesting as these findings may be, much research in the area of physical distancing has suffered from at least one of three methodological difficulties. First, many studies have involved only one task and only one dependent measure (3, 8, 9, 10, 14, 15, 16, 18, 22, 25, 27). Given the variety of tasks used by different researchers, the present study measures three types of responses in an effort to assess the consistency of any observed reactions.

Secondly, some studies have employed only one *C* to represent each condition (race, sex, etc.), with or without pre-experimental rating and matching to acquire "equivalent" *Cs* (8, 15, 24). Unfortunately, generalization across *Cs* requires treating *Cs* as a random variable, which means that there must be at least two *Cs* for each condition. This study does, in fact, employ two *Cs* for each race and sex combination.

Thirdly, unless measures of affective reactions are obtained from the *Cs*,

as well as the *Ss*, results are equivocal. The possibility remains that *Ss* are not responding to the traits for which the *Cs* were selected, but are reacting to the differential anxiety exhibited by those *Cs*. For example, in a hypothetical study finding greater discomfort on the part of white *Ss* in the presence of black *Cs* (*vs.* white *Cs*), it is possible that the black *Cs* are themselves more anxious than the white *Cs*, since they are interacting with an *S* of another race. If this is the case, then the *Ss* reporting the higher discomfort interacted with *Cs* who were distinctive in at least two ways: (*a*) they were black, and (*b*) they were more anxious than the other *Cs*.

Which of these confounded characteristics generated the *Ss* discomfort is no trivial issue. The difference is between a process which merely requires *Ss* to detect subtle cues of discomfort and react to them (an *indirect cyclical* discomfort), and one which requires *Ss* to respond to innate traits (a *direct stimulus* discomfort). The implications of the former process are as innocuous as those associated with greater opposite-sex discomfort (which society seems to have approved), while the implications of the second process are far more unsettling. This study does obtain affective reports from all *Cs*, thus allowing a partial check upon these rival hypotheses.

B. Method

1. *Participants*

Eighty white female undergraduates in an introductory psychology course participated in the experiment partially to fulfill a course requirement. Eight additional undergraduates (two of each race and sex combination) were employed to pose as naive *Ss*. *Cs* never met, were thus unaware of the race and sex composition of their group, and could not guess the hypotheses of the study at the end of the experiment. Each of these "blind" *Cs* participated with 10 *Ss*.

2. *Procedure*

When an *S* arrived at the designated room, she found a note on the door asking her to please enter and take a seat. Inside she found a row of 10 individual chairs lining one wall with one of the eight *Cs* already seated in the second chair from the end. No *S* failed to take a seat. The *E* soon entered, noted the *S*'s seating position, and announced that now the experiment could begin.

The *E* asked each participant to stand and occupy a position at opposite ends of the room. As a result of prearranged seating positions, the *C* was always assigned to stand inside a square taped to the floor at one end, while

the *S* was placed on a large X at the other end. Between the two participants was a series of 13 horizontal strips of tape marking distances of 15, 11, 8, 6, 5, 4, 3, 2½, 2, 1½, 1, ½, and zero feet from the *C*'s toes. The *E* explained that the study concerned physical spacing and that the person standing on the X would approach the person standing in the square in a series of steps. The *S* was instructed to move from one position to the next (as designated by the markings on the floor) only when signaled. At each position, both the *S* and *C* rated their discomfort on a printed 10-point scale. The *S* was instructed that if she felt that she would be too uncomfortable to approach closer, she should not advance after the signal, but instead say, "Now." At that point the *S* and *C* rated how uncomfortable they would have felt if the *S* had advanced to the next position.

The *E* was positioned behind the *S*'s line of sight and signaled at approximately eight-second intervals. The procedure was completed when the *S* either signaled her unwillingness to approach closer or when she reached the closest approach position. However, in an attempt to maintain the perceived equality of the two participants, positions were exchanged at opposite ends of the room and the entire approach was re-enacted, this time with the *C* approaching the *S* and deciding when to stop. *S*s were not debriefed.

3. *Dependent Measures*

This study employed three primary dependent measures. First, the most nearly "natural" behavior observed was the initial seating choice of each *S*. This unobstrusive index of approach was obtained by counting the number of vacant seats between the *C* and the *S*'s chosen seat, and could range from zero to 7. Second, in order to measure affective reactions to each *C*, *S*s reported level of discomfort at each approach position was recorded. These ratings produced 13 separate dependent measures, each ranging from 1 (no discomfort) to 10 (extreme discomfort). Finally, a second, more obstrusive index of physical approach was obtained by recording the highest (closest) position to which each *S* was willing to advance. The score for this measure was simply the number of the highest position reached.

In addition, it is likely that an important secondary index of affective reaction might be the distance at which discomfort is first elicited. Accordingly, this initial discomfort distance was measured by noting the approach position at which *S*s first reported a discomfort level greater than 1.

C. Results

The experimental design consists of three factors (race, sex, and *C*) with two *C*s nested within each of the four cells resulting from the factorial com-

bination of race and sex. Analyses of variance were conducted on all dependent measures.

1. *Seating Choice*

The analysis of seating choice showed a main effect for race ($F = 17.19$; $df = 1,4$; $p < .02$) and indicated that *Ss* maintained a significantly greater distance from black *Cs* than they did from white *Cs* ($\overline{X} = 3.90$ for black *Cs*; $\overline{X} = 2.95$ for white *Cs*.) Both male and female white *Cs* elicited identical distances ($\overline{X} = 2.95$ for both sexes). In contrast, black *Cs* of both sexes elicited distances greater than this, with the greatest distance being elicited by black males ($\overline{X} = 3.65$ for black females; $\overline{X} = 4.15$ for black males). However, this race $\times$ sex interaction was not significant ($F = 1.19$; $df = 1,4$; $p < .35$).

Internal inspection of the seating scores further supports this finding of relative avoidance of black *Cs*. Of the four *Ss* who maintained the maximum possible distance by choosing the seat farthest from the *C*, all four (100%) did so in the presence of a black *C*. Similarly, of the 11 *Ss* who chose to sit only one seat removed from the *C* (no *S* sat immediately next to a *C*), only one (9%) did so in the presence of a black *C*.

2. *Affective Reactions*

Separate analyses of *Ss* reported discomfort at each of the 13 approach positions resulted in significant effects due to the sex of the *C*. At a number of positions (positions 4, 5, 6, 7, 9, 10, 11) female *Ss* approaching male *Cs* reported greater discomfort than those approaching female *Cs* (*Fs* ranging from 7.68 to 67.60; $df = 1,4$; all $ps < .05$). Similarly, male *Cs* elicited initial discomfort sooner than did female *Cs* ($\overline{X} = 5.45$ for male *Cs*, $\overline{X} = 7.38$ for female *Cs*), and this difference was significant ($F = 48.20$; $df = 1,4$; $p < .01$.) There were no significant race effects for these measures.

3. *Approach Measures*

No significant effects were found on the measure of overt approach, indicating that *Ss* advanced to approximately the same position for all *Cs* ($\overline{X} = 11.8$).

4. *Consistency Across Measures*

While mean differences on these three measures would indicate one form of racially or sexually discriminatory behavior, another form (differential stereotypical behavior) is exhibited when one group elicits highly consistent

behavior and another does not. To test for this second, more subtle effect, separate correlations were computed for *Ss* who interacted with black and white, male and female *Cs*. While there was no sex difference, an interesting and important effect of race resulted. Table 1 shows that while *Ss* who interacted with white *Cs* showed no significant correlations between measures, the *Ss* who interacted with black *Cs* did show high correlations between some measures. The seating choice of *Ss* interacting with black *Cs* was significantly correlated with their discomfort at five positions (positions 6, 7, 8, 9, and 10) and with their initial discomfort distance. Table 1 also shows that the differences between these correlations for *Ss* who interacted with white *vs.* black *Cs* are all significant on at least the .10 level.

5. *Confederate Ratings*

To check the possibility that *Ss* were responding not to racial and sexual characteristics, but to the confounded aspect of differential discomfort among *Cs*, the affective ratings provided by the *Cs* were also analyzed. For none of the 13 approach positions nor the measure of first discomfort were there any significant effects due to race or sex traits. Thus, *Cs* reported being equally comfortable, and this suggests that *Ss* were probably responding to the direct stimulus of racial and sexual traits.

D. Discussion

There are two important findings of this study. First, in a nonreactive, "natural" situation, white female *Ss* exhibited relative avoidance of blacks. Both the fact that little interpersonal interaction had yet occurred and that all *Cs* indicated equal discomfort on their rating sheets strongly suggests that *Ss* responded solely on the basis of the *C*'s race. Such racially motivated avoidance is disheartening to proponents of a fully integrated society, since it suggests an unwillingness to initiate the interpersonal contact which has occasionally been shown to be effective in reducing prejudice (2).

Secondly, *Ss* interacting with blacks showed a pattern of consistent behavioral and affective reactions not shown by *Ss* interacting with whites. Since prior studies have typically used only one task, the differential behavioral consistency shown here has not previously been demonstrated. Such differential consistency can be interpreted in at least two ways. First, the fact that seating choice and discomfort was highly related for *Ss* interacting with black (but not white) *Cs* can be interpreted to suggest that seating near blacks was determined by affective reactions but that seating near whites was determined by other, more variable influences.

TABLE 1
CORRELATIONS BETWEEN SEATING CHOICE AND AFFECTIVE RESPONSES FOR *Ss* INTERACTING WITH BLACK *vs.* WHITE *Cs*

Race of *C*	Dependent measures: Approach position No. 6	Approach position No. 7	Approach position No. 8	Approach position No. 9	Approach position No. 10	Initial discomfort distance
Black	.356**	.321**	.301*	.316**	.321**	−.400**
White	.036	.002	−.067	−.016	−.060	−.057
Difference[a]	1.445*	1.424*	1.626*	1.475*	1.690**	−2.069**

Note: $N = 40$ for all correlations.
[a] Differences between correlations are reported as Z scores.
* $p < .10$.
** $p < .05$.

This process would imply that while white-white relations may vary with personal and situational factors, white-black relations may be somewhat locked into a self-perpetuating cycle of negative affect leading to avoidance and *vice versa*. In this case, both the negative affect and the avoidance are especially disappointing, since they are exhibited by students at a Northern upper-middle-class private school, presumably a relatively liberal segment of the general population.

A second interpretation of these differential correlations, perhaps not exclusive of the first, focuses on the correlations themselves and the behavioral consistency that they suggest. If seating and discomfort-reporting are both behavioral cosymptoms of interpersonal liking, it can be argued that while *Ss* interacting with whites allowed personal and situational factors to introduce variability into their behavior, *Ss* interacting with blacks responded to a single feature, that of race. To the extent that this consistency of behavior is differentially displayed only toward blacks, this behavior can conceivably be labeled racist. "Racism is manifested in social reality if it is shown that race is the primary criterion for a specifiable set of intrasimilar reactions" (1, p. 888).

These findings provide deceptively strong evidence of racially discriminatory behavior. At first glance it might seem more desirable to have obtained significant effects for race on more than one measure. However, lacking the difference in significant correlations, such findings would in fact be weaker than those reported here. For while two instances of discriminatory behavior would show that *as a group, Ss* interacting with blacks show relative avoidance in two different circumstances, it would not show that *within an individual*, the racial stimulus can either cue an examination of affective reactions or override potential sources of behavioral variability. The correlational data

in this study show that *only in the presence of blacks* did those same individuals who preferred the greatest seating distance also report discomfort sooner and to a greater degree.

Of course, the strongest evidence would have been a main effect for race on all measures *and* significant correlations only with blacks. This would have shown consistent racially discriminatory behavior on a variety of tasks, and it is unfortunate (in a purely scientific, not a social sense) that such results were not found. However, except for a few studies which claim high behavioral consistency without correlational support (e.g., Pedersen and Heaston 24), most studies are cursed with a lack of behavioral correlation (4, 7, 13, 16, 19, 23).

Viewed from another perspective, though, this lack of behavioral correspondence is not totally unexpected. Campbell (5) convincingly argues that there is no logical reason to expect "consistency" between behaviors of differing situational thresholds. He claims that discriminatory potential may always be present and that its emergence may be simply a matter of the psychological structure of the situation. Within this framework, the failure to find discriminatory behavior on the highly visible measure of approach and reported discomfort is not surprising, since an admittedly *post hoc* judgment suggests that the threshold for discriminating on these latter tasks would be higher than that required for the initial seating behavior. Given that psychologists are interested in making inferences about everyday behaviors, this lack of correspondence between behaviors should warn researchers against the overuse of simulated tasks and encourage them to design studies with an explicit emphasis upon nonreactive, unobstrusive measures (26).

One prospect for future research, and possibly the most socially useful, is an examination of the extent to which racial avoidance of the type shown here can be reduced through repeated exposure and/or contact. An analysis of *C*s' ratings in this study does show a significant decrease in discomfort over the course of the 10 *S*s with which each *C* interacted, although this trend could easily be merely a function of task adaptation rather than indicative of an actual psychological process. It is this last area, perhaps, more than any other, that offers possibilities for a less racially discriminatory society.

The finding that males elicited greater reported discomfort from females than did other females replicates the findings of McBride *et al.* (20) and adds a new, affective dimension to the findings of Leibman (15) and Dosey and Meisels (7). However, the lack of a significant sex effect on more nonreactive measures (specifically the seating behavior) leads one to speculate

about the aversiveness of this discomfort. For example, the fact that *Ss* reported greater discomfort toward males at many stages during the approach, yet still approached as close as to other females, implies a greater tolerance of discomfort toward males. It seems likely that opposite-sex interactions are *expected* to produce more uneasiness in this society, that each sex is aware of this fact, and that, consequently, a greater willingness to accept this discomfort is exhibited before terminating the interaction. If so, then the finding is, in effect, a rather innocuous product of the norms of this society.

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THE EFFECT OF SELECTIVE ATTENTION ON COMMUNICATING PERSONALITY IMPRESSIONS*[1,2]

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SUMMARY

An area in person perception that researchers have not considered closely involves the communication of personality impressions from one person to another. This experiment investigated the role of attention in impression communication with the use of Norman's model of selective attention. Specifically, it was hypothesized that selective attention facilitates communication accuracy. The *Ss* were 56 paid undergraduate volunteers, 28 males and 28 females, ranging in age from 18 to 24. Three encoding groups of 12 *Ss* each were given identical videotaped object person information, but Group I was instructed to attend to the object persons' physical characteristics, Group II to forming accurate personality impressions, and Group III received no instructions. All groups were tested for recall of physical characteristics and also were requested to write down their impressions of each object person. Decoders were presented with the same videotapes and then matched each encoded impression with the correct referent. Results showed Group I recalled significantly more physical characteristics ($p < .001$), while Group II communicated personality impressions most accurately ($p < .001$). The data were interpreted as supporting Norman's model.

A. INTRODUCTION

Attention is recognized as occupying a central role in cognitive functioning and, consequently, should have a direct influence on various interpersonal judging processes. An examination of the person perception literature reveals

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[2] Requests for reprints should be sent to the author at the address shown at the end of this article.

no systematic analysis of attention effects although certain stimulus attributes of the object person are recognized as having cueing properties which influence the final personality judgment. Information about attention-like processes has generally come from other areas of research which have evolved sophisticated theories based on both human (2) and infrahuman *Ss* (6, 16, 17). In studying attention and memory functions, researchers have presented *Ss* with geometric figures, nonsense syllables, etc. and then tested recall. Clearly parallels exist between processing this kind of information and the impression formation process in which certain information is retrieved from memory and incorporated into the personality impression.

Moray (7) identified six concepts of attention currently in use in the psychological literature, while Posner and Boise (15) suggest in their review that attention research can be categorized into at least three major groupings: alertness, information selection, and limited central processing capacity. Although all three groupings are an integral part of the overall attention process, the latter two appear more central to interpersonal judging activities where personality assessments depend on the information sampled (*cf.* 1). Frequently in interpersonal situations we are met with a kaleidoscope of information of which only a small part is incorporated into the final impression, raising a question about the determinants of information selection. How often have we been asked to comment on the color of a friend's apparel and not been able to remember, even though we have been exposed to that information?

Several human information processing theories of attention have been proposed (*cf.* 2, 4, 18) which attempt to account for the storage and retrieval of different kinds of information. These theories rely heavily on a limited capacity processing system which consists of two stages: short-term memory (STM) and long-term memory (LTM). In the first stage, physical energy or stimulation is translated into nervous impulses by the sensory receptors, and these are transmitted as signals along neural pathways to STM. The important point to note in this respect is that *all* stimuli impinging on the receptors are conveyed to STM. Once in STM the information is available for further processing into LTM for a very short period of time after which it fades and is replaced with additional incoming signals. In the second stage, information passes from STM into LTM; however, because the channels between the two memories are of limited capacity, only certain information enters LTM. A *selective attention mechanism* is posited to handle the information overload which chooses only part of the information in STM for transfer into LTM. Once in LTM the information is available for future use.

Recently, Norman outlined a selective attention mechanism which appears

potentially useful for investigating interpersonal judging processes (8, 9). Consistent with previous theories, attention is posited as the mechanism responsible for selecting which information has access to LTM. However, in order for a particular item to receive attention, it must first be activated by two factors: sensory input and pertinence. Sensory input is simply the physical presence of a stimulus and its representation in STM. Pertinence refers to the psychological aspects of input as determined by the individual's expectations and linguistic system. Suppose that sensory input caused storage items *a*, *b*, and *c* to be highlighted and that pertinence activates storage representations *c*, *d*, and *e*. The common element (*c*) which receives stimulation from both sensory input and pertinence is the most activated and consequently is selected by the attention mechanism for further processing. A person's name (*c*) presented dichotically with a number of other words (*a*, *b*) at the same intensity will be readily attended to and recalled because of its psychological pertinence to the person.

It is important to note two basic characteristics of this model. First, because of limited capacity, not all the information impinging on the receptors is totally processed (that is, permitted to pass into LTM). Secondly, information not placed in LTM is totally lost for retrieval after a very short period of time. The information fades in STM and is quickly replaced by other incoming signals. Consider a typical interpersonal judging situation. According to this model (*a*) not all information pertaining to the stimulus complex or object person can be processed, and consequently certain attributes may be attended to, such as style of clothes and facial features, while others are ignored; (*b*) only that information placed in LTM is available for future reference. If some particular item of information is important to accuracy but was not attended to and stored, the judge would not be able to recall the item, and accuracy would be impaired.

The implications of this analysis are especially important for such individuals as clinicians, counsellors, or personnel officers who must make accurate judgments about people. It is essential that they make accurate predictions about the object person's behaviors and communicate accurately personality impressions of the object person. This predisposition toward accurate personality analysis would cause the assessor to seek selectively information about the object person which would enhance behavior prediction and would facilitate impression communication accuracy. The question remains whether such information-seeking strategies do, in fact, make a person more accurate in his interpersonal judging ability.

Person perception researchers have examined interpersonal judging behavior from two perspectives: the process approach and the accuracy approach.

Asch's classic study (1) of the warm-cold variable is representative of process studies which attempt to investigate the impact of certain variables on the ensuing personality judgment. Accuracy researchers, on the other hand, have been primarily interested in the veridicality of the judgments (*cf.* 3).

More recently Perry and Boyd (11) suggested that in addition to these two activities, interpersonal judging patterns involve the communication of personality impressions between people. They argue that a good part of the impression formation process is devoted to the exchange of personality impressions both in a professional capacity and in a variety of social settings.

Much of their research has been concerned with developing an adequate methodology for studying the phenomenon. Essentially, an encoder makes a personality judgment and transmits it by written message to a decoder who attempts to identify the intended referent. Although this experimental analogue does not reproduce the entire complex social pattern associated with impression communication, it does permit the basic components of the system to be examined under controlled laboratory conditions. In their studies Perry and Boyd examined a number of variables related to impression communication, including object person presentation methods, message length, perceived motivation, and response style (11, 12, 13). The methodology used in the present experiment is an outgrowth of these studies and has been shown to be reliable (13).

Although Norman's model is based primarily on well-controlled laboratory tests using simple, discreet stimuli, its principles should generalize to less structured social settings where the object person can be considered as a complex stimulus configuration. The attention hypothesis was tested with five object persons from three communication errors categories. Previous impression communication research (12; 13, Experiment I) has shown that object person identification errors generally fall into three separate categories. Specifically, it was predicted that attention would facilitate impression communication accuracy. It was hypothesized that the attention group (II) would have the lowest communication error rates. Also, in accordance with the previous impression communication research, similar mean error rates were expected in communicating impressions of the three object persons.

B. Method

1. *Subjects*

The *Ss* were 56 paid volunteers (28 males and 28 females) from the University of Calgary who were assigned to one of two groups. Thirty-six were designated as *encoders* whose task was to communicate personality im-

pressions so that another person (decoder) could identify who was being described. Twenty *Ss* were designated as *decoders* whose task was to match the encoders' impressions with the correct object persons.

2. *Materials and Procedure*

The object person stimulus materials were taken from five filmed interviews used in Cline and Richards' research (3). Each object person responded to the same questions concerning the kind of information that comes from a brief acquaintance with a person: occupation, political and religious beliefs, hobbies and sports activities, and life satisfaction and goals. The first four minutes of each film were transferred to a black and white videotape, and each interview was separated by a 30 second interval. Two object persons were male—a newspaper writer (Charles Auburn) and a police officer (Harold Dunlop)—and three were female—a model-maker working in map design (Susan Reid), a psychology student (Norma Peterson), and an English student (Jane Davis). In previous research impressions of C. Auburn had consistently low communication error means ($\bar{X} = 1.98$), while impressions of N. Peterson had extremely high error rates ($\bar{X} = 6.57$) and impressions of S. Reid, H. Dunlop, and J. Davis fell in between ($\bar{X} = 5.20, 5.28, 5.83$, respectively).[3] C. Auburn, N. Peterson, and S. Reid were used in the present study as the target persons, along with the two others from the middle error category who were included as filler items to increase the difficulty of the communication task.

Two paper-and-pencil questionnaires were used: a memory test examined the encoder's ability to recall various physical attributes of the object persons, such as manner of dress and hair style, and a communication accuracy test required the encoder to write down his impression of each object person using exactly *five* words. The encoders were told to use *personality traits* and to employ descriptive terms only, omitting connectives, conjunctives, articles, etc. Previous research by Perry and Boyd (12, 13) showed that, for messages varying between one and 30 words, five word messages were most conducive to communication accuracy.

a. Encoders. Attention was manipulated according to Norman's model in which two factors are assumed to increase activation of a particular information item: sensory input and pertinence. Sensory input was identical in the encoding groups in the form of the videotaped object person interviews. However, pertinence was varied between the groups through the use of writ-

[3] Each of these values represents an aggregate mean based on the previously cited experiments (12, 13) and has a range of zero to 10 errors.

ten instructions. Group I was informed that the experiment examined how well people attended to and remembered the physical attributes of those individuals they have met. They were instructed to pay attention to the physical features of each object person and to the interview setting, as they would be examined on them later. No mention was made of the impression communication task they would be required to complete. Group II was told that they would be asked to communicate accurately their impressions of the five object persons to others. The encoders were not informed that they would also be required to take a memory test. Group III encoders did not receive any instructions about the experiment except that it was concerned with social relationships.

The inclusion of Group I in the experiment with instructions to attend to some other task than forming accurate impressions—e. g., recall of physical attributes—has two advantages. First, it prevents judges from storing information relevant to accurate judgments merely by chance. Norman's model predicts that judges would abstract only information pertinent to their task. Secondly, it provides an independent assessment of whether the attention manipulation was successful. The experimental procedure for the three groups of 12 encoders (six males and six females) was essentially the same. Encoders received a counterbalanced booklet containing instructions and the two questionnaires. After reading the instructions, the encoders were presented with the videotaped interviews and then answered the two questionnaires.

b. Decoders. Twenty *S*s were assigned to one of two groups of decoders, each balanced for sex. The impressions generated by the encoders (5 object persons $\times$ 12 encoders $\times$ 3 groups $=$ 180 messages) were equally divided into two booklets (I and II) of 90 impressions each to reduce task fatigue and/or boredom. A counterbalanced version of each booklet controlled for order effects. Each decoder received one of the four types of booklets. After reading the instructions, the decoders observed the five interviews, then attempted to match each message with the correct referent.

C. Results

1. *Memory Test*

A completely randomized ANOVA indicated that there was a significant difference between the three encoding groups in the number of physical characteristics recalled correctly ($F = 10.20$, $df = 2/35$, $p < .001$). The means for the three groups were as follows: Group I (16.17), Group II (12.33), Group III (11.83), out of a possible 20 correct. *A priori t* tests showed that Group I recalled correctly significantly more items than Group II ($t = 3.18$,

$df = 33$, $p < .01$) or Group III ($t = 4.13$, $df = 33$, $p < .01$), while Groups II and III recalled approximately the same number of items ($t < 1$, $df = 33$, $p > .05$). These data suggest that the pertinence factor was successfully manipulated with the use of written instructions. The group told to attend to physical characteristics was superior in recalling such items to those groups receiving different instructions.

2. *Impression Communication*

Impression communication accuracy was defined as the number of errors decoders made in matching a personality impression with the correct object person. To prevent chance level responding on the decoding task (i. e., 18 correct out of 90 matchings) and to maximize motivation, those decoders whose total scores fell below a specified proficiency level (40) were eliminated from further analysis. The range of correct scores for decoders who received booklet I was 44 to 56 ($\bar{X} = 47.5$), and for booklet II, 46 to 61 $\bar{X} = 51.9$), with each message being decoded 10 times and errors varying between zero and 10.

A 3 × 3 factorial mixed ANOVA indicated that impression communication accuracy was influenced significantly by both the attention variable ($F = 6.53$, $df = 2/33$, $p < .001$) and the object persons variable ($F = 30.86$, $df = 2/66$, $p < .001$). The mean communication error rates for the three encoding attention groups were as follows: Group I, 4.83; Group II, 2.87; Group III, 4.11. Group II, which was instructed to attend to forming personality impressions that would be accurately communicated, had significantly fewer errors than Group I which was asked to attend to physical characteristics ($t = 3.55$, $df = 33$, $p < .01$) or Group III which received no instruction regarding pertinent information ($t = 2.31$, $df = 33$; $p < .025$). The mean communication errors for impressions of the object persons were as follows: Auburn, 1.39; Reid, 5.14; Peterson, 5.19. The ordering of these means is consistent with Perry and Boyd's earlier findings (12, 13), although the mean errors were somewhat lower especially for Peterson (6.57). *A priori* t tests indicated that impressions of Auburn were communicated with fewer errors than Reid ($t = 7.25$, $df = 66$, $p < .001$) or Peterson ($t = 7.34$, $df = 66$, $p < .001$), while impressions of Reid and Peterson were similar ($t < 1$, $df = 66$, $p > .05$).

D. Discussion

The purpose of this experiment was to apply a theoretical model of attention developed by human information processing researchers to a dissimilar, though conceptually congruent, person perception paradigm. It was demon-

strated that attention plays a major role in interpersonal judging processes and that its operation approximates a model outlined by Norman (8). The results support the assumption that certain parallels exist between making inferential judgments about complex stimulus patterns (object persons) in ambiguous social contexts, and processing information about simple stimulus events under well-controlled laboratory conditions.

Some clarification of the relationship between *attention and memory* and the *impression formation process* is provided when the memory test data and the impression communication data are considered together. Although Group I judges retained in LTM significantly more of the object persons' physical characteristics, they were not able to communicate their impressions as accurately as Group II judges. On the other hand Group II judges were unable to recall correctly many of the physical attributes of the object persons, even though they communicated their impressions accurately. What this suggests is that an intermediary stage may exist in processing information for certain kinds of tasks. For simple tasks involving the storage of descriptive information items like object color, shape, size, etc., there may be a direct flow of items from STM to LTM as described in Norman's model. However, for more complex cognitive tasks which require inferential judgments, a secondary process appears to be operative that functions to test the inference not unlike Norman's description of retrieval (8). Consequently, during sensory input a personality trait inference can be tested by comparison to additional incoming information. If the trait "warm" is attributed, the judge can confirm this inference simply by comparing it to succeeding information. Presumably the more opportunity for testing the inference during processing, the more veridical it should be.

During the impression communication task Group II judges were able to test their trait inferences directly by comparing them to incoming sensory input, making appropriate changes where necessary, and thus improving representativeness of the personality impression. Group I judges, on the other hand, had information pertaining to the object persons' physical attributes in LTM, but in making an inference a judge could not test its representativeness, since additional supportive information was not available either in LTM or from sensory input. Consequently, it must have been the trait inferences that were stored in LTM, rather than separate items of information pertaining to the object persons which soon fade (*cf*, Group II). Should an individual unexpectedly have to make accurate judgments about an object person long after sensory input has ceased (e.g., Group I), accuracy would

be extremely poor because (*a*) many accuracy-relevant items were not placed in LTM, and (*b*) no opportunity existed for checking the trait inferences against further incoming sensory input.

The importance of selective attention in interpersonal judging processes is obvious in certain applied settings in which impression communication and behavior prediction operate together. Such is the case where a psychologist or physician must make recommendations about therapy or treatment based on the client's background and personality description as provided by a social worker or nurse. Fancher (5) had one group of judges form personality impressions of object persons based on written information and had a second group attempt to make predictions about the object persons' behaviors from the first groups' personality impressions. His results showed a negative correlation between a judge's ability to conceptualize accurately the object person and the ability of another judge to use the impression to make accurate behavior predictions. It is very likely that in these complex judging situations the kind of information that the first person selects to complete his task is not the same kind of information that the second person requires to accomplish his task.

The data also supported the previous impression communication research findings that impressions are transmitted with differential accuracy. Certain impressions are communicated with very few errors, while others manifest extremely high error rates. Perry and Buser (14) have found that one factor influencing communication accuracy is the negative attributes possessed by on object person. Impressions of object persons characterized by negative traits were communicated with fewer errors than impressions of positively described object persons. This supports Perry's contention that Auburn's negative personality attributes are responsible for the corresponding impressions having such low error rates (10).

More generally this experiment focused on the role of attention in interpersonal judging processes. Although it has long been recognized that attentional factors are fundamental to social discourses, very little effort has gone into examining the phenomenon more closely. What the results clearly illustrate, aside from the generalizability of Norman's model, is that rather than defining attention as some general, vague concept, which has a dramatic impact on social perception, a more rigorous approach can be taken. Such an approach can result in more precision in operationally defining the construct, more control in manipulating the variable, more accurate predictions, and better conceptual understanding of the variable.

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Under this heading appear summaries of studies which, in 500 words or less, provide comparable data from two or more societies through the use of a standard measuring instrument; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, **98**, 131-132.

THE EFFECT OF PERCEIVED INSTRUMENTALITY ON THE RELATIONSHIP BETWEEN THE VALENCE OF PAY AND JOB PERFORMANCE*

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According to valence-expectancy theory[1] the more employees believe that effective performance will lead to financial rewards, the more motivated they will usually be to perform well; and the more valence or importance attached to financial rewards, the more motivated they will usually be to perform in a manner that will earn them these rewards. This means that the amount of valence attached to pay should be more highly related to job performance in the case where employees perceive a strong relationship between pay and performance than in the case where employees perceive a weak relationship. This prediction has not yet been tested with black African factory workers.

To test the cross-cultural validity of this prediction, a sample of 56 black factory supervisors in South Africa (average age 36.4 years), all with at least eight years of formal schooling[2] were given (*a*) a measure of instrumentality and (*b*) a measure of valence. In addition, (*c*) a measure of job performance was obtained for each *S*. Instrumentality was measured by a seven-point scale, which required the *S*s to indicate the chances that working hard would lead to more pay for them, with the anchors 5 (excellent), 4 (good), 3 (fair), 2 (slight), 1 (none). Valence was measured by a seven-

* Received in the Editorial Office, Provincetown, Massachusetts, on September 17, 1974. Copyright, 1976, by The Journal Press.

[1] Lawler, E. E. Pay and Organizational Effectiveness: A Psychological View. New York: McGraw-Hill, 1971.

[2] Orpen, C. An environmental theory of job satisfaction. *J. of Psychol.*, 1974, **87**, 3-8.

point scale which required the *Ss* to indicate the importance they attached to their pay, ranging from 1 (unimportant) to 7 (very important). Job performance was given by the responses of the workers' immediate supervisors to a seven-point scale requiring them to indicate how well their particular worker did his job, ranging from 1 (not very well) to 7 (extremely well). The scales were administered by a black assistant under anonymous conditions during official work-breaks.

The sample was divided into a high- and a low-instrumentality group, depending on whether the *Ss*' scores fell above or below the median. The high group obtained a significantly higher ($p < .05$) mean instrumentality score ($\overline{X} = 4.63$, $SD = 1.21$) than the low group ($\overline{X} = 3.81$, $SD = 1.36$). The difference between the mean performance score of the high group ($\overline{X} = 5.61$, $SD = 1.79$) did not differ significantly ($p > .05$) from that of the low group ($\overline{X} = 5.92$, $SD = 1.93$). Similarly, the high group did not attach significantly more importance to their pay than the low group ($p > .05$), with the mean valence score of the high group being 6.01 ($SD = 1.02$) and the low group 5.92 ($SD = .97$). However, as predicted from the theory, the correlation between valence and performance in the high-instrumentality group ($r = .55$, $p < .01$) was significantly greater ($p < .01$) than that in the low instrumentality group ($r = .17$, $p > .05$).

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RELATION OF SUBSISTENCE ECONOMY TO A COGNITIVE TASK IN TWO EAST AFRICAN SOCIETIES*[1]

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Strong socialization pressures toward compliance (vis-à-vis assertion) are exerted in societies with important pastoral subsistence activities.[3] Agriculturally based societies are somewhat less likely to emphasize compliance, and hunting-gathering societies much less likely to do so. In herding societies particularly, food must be accumulated and cared for. Emphasis on compliance should help to make children into responsible adults in societies where the food supply has to be tended carefully throughout the year—but at the same time, evidence suggests that a personal style which involves an unquestioning compliance with authority may have a depressing effect on cognitive development. LeVine,[4] on the basis of an extensive review of psychological studies in non-Western societies, concludes that severe compliance training may produce either an inhibition of cognitive performance or a deficit in cognitive capacity.

On the basis of the relationships discussed above, it was predicted that in two Kenyan cultures, children in a strongly herding-oriented society would perform less well on a cognitive task than children in an agriculturally based society.[5] The difference between the two societies in emphasis on herding is discernible in the number of cattle in the two communities from which the sample children were drawn: At the time the testing was carried out, the herding-oriented community owned 2.3 cattle per capita, while the corresponding figure for the agricultural community was .3.

The cognitive test was a standard Piagetian task assessing acquisition of

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[1] The research was carried out in 1967 under the auspices of the Child Development Research Unit, University of Nairobi, and was supported by the Carnegie Corporation of New York. The authors are indebted to Joyce Mmene and Lea Sigei for their aid in the research.

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[3] Barry, H., Child, I. L., & Bacon, M. K. Relation of child training to subsistence economy. *Amer. Anthrop.*, 1959, **61**, 51-63.

[4] LeVine, R. A. Cross-cultural study in child psychology. In P. H. Mussen (Ed.), *Carmichael's Manual of Child Psychology* (Vol. II, 3rd ed.). New York: Wiley, 1970. Pp. 559-612.

[5] The names of the societies are omitted from this account in order to avoid invidious comparisons. Behavioral scientists with an interest in pursuing the problem investigated herein can obtain the names of the societies from the authors on request.

the conservation of mass.[6] Two female African university students, each of whom spoke the language of her sample children, conducted the sessions in the home communities of the children. All *Ss* had had experience with other tasks previously introduced by the investigators. The sample was comprised of 46 children from each society. Ages ranged from 7 to 13 years. The percentage of schoolgoers was twice as large in the agricultural society, 82% to 41%.

The *Ss* from the agriculturally based society were significantly better on the conservation task ($t = 2.46$, $p < .01$), thus supporting the hypothesis. Neither age nor sex was related to performance. There was a tendency for amount of schooling to be associated with conservation ($r = +.15$ $p < .10$). In order to assess the effect of education on the societal difference, an analysis of covariance was carried out. The results indicate that the societal difference, though less strong, remained significant ($F = 3.98$, $p < .025$).

It has been inferred that socialization practices were responsible for the observed difference in cognitive functioning. Any attempt to replicate the finding should also include direct measures of child training.

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[6] Professor Read Tuddenham, University of California, Berkeley, generously provided the investigators with a copy of standard procedures for several Piagetian conservation tasks. The procedure used in the present study closely followed Tuddenham.

The Journal of Social Psychology, 1976, **98**, 135-136.

DIFFERENCES BETWEEN MORMON MISSIONARIES' PERCEPTIONS AND CHINESE NATIVES' EXPECTATIONS IN INTERCULTURAL TRANSACTIONS* [1]

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This study was designed to discover some areas in which cultural cues did not become part of the awareness level of young missionaries of the Church of Jesus Christ of Latter-day Saints (Mormon) while serving two years immersed in the Chinese milieu of Taiwan and Hong Kong.

Utilizing young former missionaries and Chinese respondents, the study focused upon the diversity between performance and cultural expectation which marks the nature of cultural contacts between missionaries and the peoples with whom they work. The hypothesis suggests that cultural differences are often ignored by missionaries at the expense of their communication effectiveness and that the perceptions of missionaries conflict with the expectations of the Chinese.

Six areas of interaction were examined by means of a modified Q-technique: Personal Appearance, Tradition, Language, Personal Manners, Church Behavior, and Personal Space. Thirty recent former missionaries and 30 native Chinese sorted decks of 70 cultural statements, each in their respective native language and each assigned to one of the six areas of interaction, into a rank ordering scale ranging from strongly agree to strongly disagree. The statement decks were then forced into a quasi-normal distribution along an 11-point scale.

Overall, the study produced significant differences in views between the two groups on 29 of the 70 statements (41.4%) and in four of the six concept categories (66.7%). It would appear reasonable to conclude that a 41.4% rate of significant disagreement with the Chinese indicates that the missionary respondents generally completed their missions with serious cultural knowledge deficiencies.

The hypothesis of significant difference in the six concept areas was supported in four areas: Personal Appearance, Tradition, Language, and Per-

* Received in the Editorial Office, Provincetown, Massachusetts, on October 16, 1974.
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[1] Copies of the detailed study upon which this paper is based are available upon request to the authors at the address shown at the end of this article.

sonal Manners. In the two areas of Church Behavior and Personal Space there was no significant difference in agreement between the two groups. However, no single behavior category was found to disclose a total lack of significant disagreement, since each concept contained at least one statement in which such significant disagreement occurred.

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REPLICATIONS AND REFINEMENTS

Under this heading appear summaries of studies which, in 500 words or less, provide useful data substantiating, not substantiating, or refining what we think we know; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, **98**, 137-138.

VARIATION IN GROUP CONFORMITY INFLUENCE*

The University of Kentucky, and The University of Texas

E. Leon Knight, Mark I. Alpert, and Robert E. Witt

Variation in conformity influence was examined in a modified Asch situation[1] with groups composed of one naive and three confederate *Ss* each. Thirty-two naive student *Ss* were tested in eight replications of the 4 × 4 Latin square arrangement of decision stimuli. The decision stimuli of this study consisted of four pretest selected products: sport coat, art print, toothbrush, and bath towel.

Pretest product evaluation was based on a set of Likert-type scales which focused on perceived social relevance and perceived relative decision expertise. The four products selected represented an optimal array of the four possible combinations of high and low scale ratings on each of the two conformity determinants.[2]

Variation in perceived social relevance of decision stimuli was measured by means of four Likert-type scales which focused on (*a*) the extent to which a user image was perceived to be associated with a product, (*b*) the extent to which a product was perceived as an indicator of the user's personal taste, (*c*) the perceived conspicuousness of the product, and (*d*) the likelihood an *S* would seek product information prior to purchase.

* Received in the Editorial Office, Provincetown, Massachusetts, on September 13, 1974. Copyright, 1976, by The Journal Press.

[1] Asch, S. E. Effects of group pressure upon the modification and distortion of judgments. In *Basic Studies in Social Psychology*, H. Proshansky & B. Seidenburg (Eds.). New York: Holt, Rinehart & Winston, 1965. Pp. 393-401.

[2] For a detailed discussion of all measures and analytical techniques used see Knight, E. L. An experimental investigation of variation in group conformity influence across personality types and products. Unpublished Doctoral dissertation, The University of Texas, Austin, Texas, 1974. (Available through Interlibrary loan, BEB Library, The University of Texas at Austin).

Perceived relative decision expertise was measured by means of two Likert scales which focused on (*a*) the *S*'s perception of his relative decision expertise in a given product category, and (*b*) the *S*'s perception of the presence of physical product differences on which to base a given decision.

It was hypothesized that (I) conformity to group influence would vary across products, (II) conformity would vary positively with the perceived social relevance of the product, and (III) conformity influence would vary negatively with perceived relative decision expertise.

Hypothesis I was tested in an analysis-of-variance model, with differences in conformity behavior across products significant at $\alpha = .21$. While this implies weak support for the hypothesis, the direction of observed conformity was consistent with the underlying theory. Conformity was highest on the art print and sport coat, both socially relevant products. Moreover, conformity on each was significantly greater than chance at $\alpha < .05$, which was not the case for the bath towel and toothbrush.

Hypotheses II and III were tested by a multiple discriminant analysis (of conformers *vs.* nonconformers for each product) in which predictor variables were *S*'s ratings of the product's social relevance and perceived expertise, respectively. Hypothesis II was supported only for the sport coat ($\alpha < .05$), where perceived social relevance was higher for conformers. Hypothesis III was supported only for art prints ($\alpha < .10$), where perceived relative decision expertise was higher for nonconformers.

This experiment suggests that conformity to group influence may vary across products having differing perceived social relevance and relative decision expertise. Although the findings were not strongly supportive of the underlying theory, a partial validation of hypotheses was observed.

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The Journal of Social Psychology, 1976, **98**, 139-140.

A SEX DIFFERENCE IN SHAPE PREFERENCE*

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RUTH H. MUNROE, ROBERT L. MUNROE, AND LEONARD M. LANSKY[1]

Investigators have found sex differences with respect to both shape preferences and shape productions. The studies have been conducted in Europe and the United States with adolescent and adult *S*s. It has been suggested that the differences may be based on sex-linked symbolic properties of the figures. In studies of *preference*, males choose rounded, indented figures, and females choose angular, protruding figures.[2] On a drawing completion task, however, the *productions* of males are angular, protruding, and expanded; completions of females are more typically rounded, indented, and internally elaborated.[3] Further, in a block-building task, males produce high, closed constructions whereas females produce low, open constructions.[4] The reversal, between preference and production, may reflect the operation of different principles. Preference for figures may represent sexual object choice; production of figures may represent symbolic representation of self.[5]

The present task was intended to explore another area in which differential choices might be made. If an *S* were offered an ingestible item, would the shape of the choice be dictated by those principles which apply to preference or to production?

All 4- to 6-year-olds present in a Protestant Sunday School class in a Midwestern town and all 6- to 12-year-olds present in a small public elementary school in an Eastern town were tested. The total sample was composed of 92 males and 83 females. A male *E* announced to the children (in a group) that they were going to be asked to select "something to eat." The regular teacher (in each instance) announced that they were not to unwrap the object until

* Received in the Editorial Office, Provincetown, Massachusetts, on September 17, 1974.
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[1] Leonard M. Lansky is in the Department of Psychology, University of Cincinnati, Cincinnati, Ohio.

[2] McElroy, W. A. A sex difference in preferences for shapes. *Brit. J. Psychol.*, 1954, 45, 209-216. Jahoda, G. Sex differences in preferences for shapes: A cross-cultural replication. *Brit. J. Psychol.*, 1956, **47**, 126-132.

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the period was over. *E* then asked each *S* individually to choose one of the objects, pieces of candy wrapped individually in aluminum foil. Spherical candies (approximately 1.9 cm in diameter) were presented in a container with a round surface area. Cube-shaped candies (approximately 1.6 cm per side) were presented in a container with a rectangular surface area. Pretesting indicated that these sizes were equally picked as "the larger." The round container was always presented on the *S*'s right side and the rectangular container on the left.

Although the spherical candies were chosen more frequently than the cube-shaped candies by both sexes, girls chose a disproportionate number of the former, 83% to 57% ($\chi^2 = 14.48$, 1 *df*, $p < .001$). This tendency was present at all age levels.

The finding fits more closely with those previously cited for productions than with those cited for preferences. In terms of the explanatory principles employed in other work, the direction of the finding suggests that an object to be ingested will correspond to one's conception of own body rather than represent an attraction or object choice.

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MACHIAVELLIANISM AND LOCUS OF CONTROL*

University of Manitoba

TERRY J. PROCIUK AND LAWRENCE J. BREEN

Although external locus of control has been shown positively related to Machiavellianism,[1] Minton[2] has stated that there may be some externals who tend to be Machiavellian, and some whose attitudes are passive regarding any desire to manipulate others. Internals, who feel that they can gain control of their environment at will, would be neither Machiavellian nor passive. Minton's analysis thus suggests that Machiavellianism is related to a specific external control expectancy. Therefore, the present study reexamined the relationship between locus of control and Machiavellianism employing Levenson's[3] internal, powerful others, and chance locus of control dimensions.

Levenson distinguished between powerful others and chance external control expectancies, reasoning that individuals who believe the world is unordered (chance) think and behave differently from individuals who believe the world is ordered but controlled by powerful others. In the second case, a potential for personal control exists. Therefore, externals who believe that powerful others control reinforcements should endorse Machiavellian strategies (e.g., manipulation, deception, flattery) to a greater extent than externals who believe that reinforcements are due to chance, luck, or fate. It was thus predicted that powerful others control would show a stronger positive relationship with Machiavellianism than would chance control. Since internals perceive reinforcements as contingent upon their own ability and effort, and subscribe to honesty and diligence, internal control and Machiavellianism were predicted to be mutually exclusive; i.e., no relationship.

Ss were 32 male and 65 female psychology students at the University of Manitoba, who participated voluntarily in this study. They were admin-

* Received in the Editorial Office, Provincetown, Massachusetts, on October 18, 1974.
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istered the Internal-External (I-E) scale;[4] Levenson's Internal (I), Powerful Others (P), and Chance (C) scales; and the Mach V scale.[5]

For males, the correlation between I-E and Mach V scores ($r = .37$, $p < .05$) was similar to that previously reported. However, the correlation between P and Mach V scores ($r = .41$, $p < .01$) differed significantly ($t = 1.93$, $df = 29$, $p < .05$, one-tailed test) from the correlation between C and Mach V scores ($r = .09$). Therefore, the relationship between external control and Machiavellianism appears to have been due primarily to belief in powerful others control, supporting the view that Machiavellianism is related to a specific external control expectancy. Also, the correlation between I and Mach V scores ($r = -.01$) supported the prediction that internal control and Machiavellianism are mutually exclusive interpersonal orientations.

For females, I-E, I, P, and C scores correlated .05, —.03, .08, and .08, respectively, with Mach V scores. Therefore, it is clear that sex differences qualified the relationship between locus of control and Machiavellianism. Previous research suggests that belief in powerful others control is related to dependency and conformity; attitudes which are more congruent with the traditional feminine *versus* masculine character.[6] Therefore, females who reported belief in powerful others control may have been less Machiavellian than corresponding males.

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The Journal of Social Psychology, 1976, **98**, 143-144.

A CYPRUS WORKSHOP: INTERVENTION METHODOLOGY DURING A CONTINUING CRISIS*

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Plans for a 10-day workshop at an isolated site in Italy for 12 Greek and 12 Turkish Cypriotes were abandoned in July 1974 because of a successful coup against the government of Archbishop Makarios and the arrival of a Turkish army in Cyprus. The participants were to be guided through exercises hopefully leading to mutual trust and understanding; then they would attempt to find (*a*) creative ideas to be communicated to their leaders who had been negotiating for six years and (*b*) new ways to build associations between the two communities.[1] Since private, unofficial organizations have had little experience in applying social science to serious, destructive social conflicts, it may be useful to record briefly the additional information derived from revisiting Cyprus during June, 1975, in order to determine whether some kind of intervention had then become feasible and useful.[2] Informal interviews—really conversations—were conducted with a few important leaders, with many of those who were to attend the original workshop, and with other Cypriot acquaintances.

Fairly complicated advanced preparations, unrelated to social science as such, were made to enter and participate in a country pervaded by thousands of refugees, physically separated into two detached parts, and teeming with military organizations. In Cyprus it was not desirable, possible, or necessary to gather the extensive data usually needed to draw conclusions for theory or action. To probe people's current miseries would have been patently cruel, although most persons easily and violently expressed their feelings. Small, haphazard samples quickly revealed unanimous views concerning tragic events in the past and the basic ingredients of the conflict, with opposite interpretations by the two sides. Any intervention by a neutral was considered premature, futile, or dangerous—or all three—by most ordinary in-

* Received in the Editorial Office, Provincetown, Massachusetts, on July 14, 1975, and given early publication by decision of the management. Copyright, 1976, by The Journal Press.

[1] L. W. Doob. A Cyprus workshop: An exercise in intervention methodology. *J. Soc. Psychol.*, 1974, **94**, 161-178.

[2] The sponsor was again the Lilly Endowment, Inc., to whose Executive Vice President, Dr. Landrum R. Bolling, gratitude is also expressed for his continued, very much needed encouragement.

formants and by leaders. The judgment of the latter, though couched in friendly terms, meant that intervention was banned, at least temporarily.

Five proposals were made in the following order: the 1974 workshop somewhere outside Cyprus; a three- or four-day conference at the one site considered relatively safe in Cyprus, a fortified hotel near the only checkpoint on the island and then occupied by United Nations forces; a series of small-group meetings in each community to explore separately the areas of psychological or sociological (but not political) agreement, with this intervener carrying documents back and forth for critical appraisals; a similar series, but with immediate interaction and communication via closed-circuit television screens; and a weekly town-hall type meeting at the fortified hotel, attended perhaps by anyone sufficiently interested and courageous or by persons otherwise selected. Psychologically, each device had and continues to have merits and demerits.

What conclusions emerge from this 1975 visit? First, the reappearance of this intervener there may have had important consequences for a future enterprise. For he thus demonstrated concretely his deep interest in the welfare of these suffering people and also the fact that he himself as a neutral friend had not been frightened or intimidated by the Cypriotes' anti-American feelings resulting from actual or alleged U.S. foreign policy and allegations about the CIA. Personal bonds on all levels, it appears, were strengthened. Secondly, the hatreds were too strong to be coped with in any conceivable intervention; it was vital to appreciate, however intuitively, the limitations of a pseudo-therapeutic technique. Generally small-group interactions are possible and useful only under certain political conditions, which conditions had not then been achieved in Cyprus. Finally, the need for patience, a continuing relationship with political leaders and potential participants, and some kind of supporting organization has become more self-evident than ever: interventions demand more than the flash of hopeful, good intentions.

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CURRENT PROBLEMS AND RESOLUTIONS

Under this heading appear summaries of data which, in 500 words or less, would increase our comprehension of socially compelling problems, hopefully move us somewhat closer to a solution, and clearly show promise of transcending their own origin in the Zeitgeist; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, 98, 145-146.

A SHOPPING LIST EXPERIMENT OF THE IMAGES OF PREPARED AND NONPREPARED FOODS*

University of Cape Town, South Africa

CHRISTOPHER ORPEN AND ANTHONY CHASE

An image of a product is a function of the feeling tones and ideas associated with it by the consumer, in addition to its physical attributes.[1] These feeling tones and ideas often seem to stem from deep-lying motivational factors.[2] For instance, it is argued that (*a*) housewives react negatively to prepared foods, compared to nonprepared foods, because of their guilt feelings about using the former, and (*b*) these feelings are partly allayed if the housewives can convince themselves they are too busy to use nonprepared foods.[3]

To examine this argument a "shopping list" experiment[4] was carried out in which 70 middle-class white South African housewives were assigned to different conditions in a $2 \times 2 \times 2$ factorial design with two levels of each of three factors (working *Ss vs.* nonworking *Ss*, working buyers *vs.* nonworking buyers, prepared food list *vs.* nonprepared food list) and asked to judge (describe) in five or six sentences the buyers of one of two lists of foods. The lists were identical except for the inclusion of three prepared foods in the

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one and three equivalent nonprepared foods in the other. Housewives were chosen in such a way that half of them worked and half did not. The buyers of the food lists were presented either as working or nonworking women. Following Woodside,[5] two independent judges assigned either a positive, negative, or neutral score to each sentence of each *S*, depending on the attitude expressed. These scores were averaged to yield a "net score" for each *S*'s description.

A three-way analysis of variance was carried out on these scores. The main effect for working *vs.* nonworking *S*s was insignificant ($F = 1.70$, $df = 1,64$, $p > .05$). The main effect for working *vs.* nonworking buyers was also insignificant ($F = 1.71$, $df = 1,64$, $p > .05$). None of the interactions was significant. However, the main effect for prepared *vs.* nonprepared foods was highly significant ($F = 45.88$, $df = 1,64$, $p < .001$).

The mean net score for the buyers of nonprepared foods ($M = 4.70$, $SD = 1.86$) was significantly higher ($p < .01$) than that for the buyers of prepared foods ($M = 2.08$, $SD = 1.85$).

These results indicate that buyers of prepared foods were less highly regarded than buyers of nonprepared foods, but that it made little difference whether the *S*s or buyers were working or not. If it is assumed that guilt feelings operate more strongly when nonworking housewives judge working buyers than when working housewives judge nonworking buyers, then the results suggest that guilt feelings do not play an important role in determining these negative attitudes toward the buyers of prepared foods.

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The Journal of Social Psychology, 1976, 98, 147-148.

THE PLEDGE AS AN INSTRUMENT OF BEHAVIORAL CHANGE*

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JOHN H. HALLAQ

An increased awareness of the hazards of smoking and interest in methods to reduce the frequency of cigarette consumption has been demonstrated at the national level by the willingness of Congress to ban cigarette advertising through radio and television. On a more limited basis, several researchers have investigated potential ways to help smokers "kick the habit" by such means as fear appeals, power of suggestion, drugs, posters, and even hypnotism.

The study by this author reports on the use of a pledge to help cure the smoking habit. This foot-in-the-door technique has been used successfully in some occasions, such as encouraging housewives to make commitments to purchase certain brands of a product. The author hypothesized, therefore, that if pledgees were willing to make some type of commitment, their success might encourage them to quit or reduce the level of smoking in the future. Accordingly, 176 smokers were approached with a proposal to make a pledge to abstain from smoking one hour daily during the month of July, 1971. The interviewers explained that their project was motivated by their concern for community welfare. Twenty-eight of those approached refused to pledge for a variety of reasons. The remainder filled out a short questionnaire about some of their smoking characteristics with a written pledge to abstain during an hour of their choosing. At the end of the month, six of the pledgees could not be reached, leaving a total of 142 smokers to be evaluated on the basis of the degree of their success in observing the pledge and its potential impact on their future intentions.

The smokers who succeeded in meeting the pledge were compared with those who failed. Chi square tests at the .01 level showed that a significantly higher number of those who completed the pledge expressed the desire to quit smoking altogether or reduce the level of their consumption, and indicated a willingness to recommend to friends to make a similar pledge. Interestingly, no significant differences were observed with respect to the successful completion of the pledge among heavy, moderate, and light smokers, although "cognitive dissonance" theory would have suggested otherwise.

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Age of the smokers was found to be of some significance. A chi square test at the .05 level indicated that among the "Below 21" age group fewer smokers succeeded in completing the pledge than would be expected, whereas more succeeded in the "Above 30" age group. These differences confirm recent findings by the Office of the Surgeon General. These same government findings confirm that under normal conditions females have a harder time quitting than males. The results of the pledge demonstrate the contrary. No significant differences were found between males and females on the basis of the rate of success in observing the pledge, on the basis of their future intent to quit or reduce, and on the basis of their intentions to recommend to friends to make a similar pledge. In fact, as a result of the pledge, a significantly higher number of females (at the .01 level) than males expressed the desire to reduce their consumption level in the future.

In conclusion, the results of this field experiment seem to confirm the hypothesis that the pledge can be used successfully as an instrument to change smokers' behavior and may even possibly result in causing what may be called the "spill-over effect" as demonstrated by the willingness of those who succeeded to recommend to their friends the observance of a similar pledge.

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The Journal of Social Psychology, 1976, **98**, 149-150.

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A study in family pathology—M. B. HANS

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School readiness as evaluated by Gesell developmental, visual, and projective tests—F. L. ILG, L. B. AMES, AND R. APELL
Rorschach scales of regression in psychosis—S. NEIGER, A. G. SLEMON, AND D. A. QUIRK
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Genetic Psychology Monographs *(continued)*

VOLUME 78—July-December, 1968

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Genetic Psychology Monographs *(continued)*

VOLUME 86—July-December, 1972

The role of enduring orientations to the environment in personality development—W. C. Bronson
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VOLUME 87—January-June, 1973

A survey and interpretation of article characteristics: *The Journal of Genetic Psychology* 1945-1969—J. E. Horrocks and J. D. Hogan
The development of listener adapted communications in grade-school children from different social-class backgrounds—K. T. Alvy
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VOLUME 88—July-December, 1973

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VOLUME 89—January-June, 1974

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VOLUME 90—July-December, 1974

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VOLUME 91—January-June, 1975

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Genetic Psychology Monographs *(continued)*

VOLUME 92—July-December, 1975

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Psychological differentiation and the *A-B* dimension: A dyadic interaction hypothesis—W. D. SHOWS

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Social class and preschool language skill: V. Cognitive and semantic mastery of number—G. E. KIRK, J. McV. HUNT, AND F. VOLKMAR

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Perceptions of aging parents in the context of disengagement theory—C. EDWARD LAHNIERS

VOLUME 93—January-June, 1976

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Imitation by second borns in adult-sibling dyads—A. F. HODAPP AND J. C. LAVOIE

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(Manuscripts are printed in the order of final acceptance)

Body-buffer zone and violence: A cross-cultural study 153
By D. B. Roger and E. E. Schalekamp

Reactions to absurd humor by Jews of Eastern and Western descent 159
By Leonard Weller, Ella Amitsour, and Ruth Pazzi

The relationship between organizational strategies and personality change among peasants in West Malaysia 165
By G. Sivalingam

Group size effects on conformity 175
By David J. Stang

The effect of three model characteristics on imitation and learning 183
By Judith L. Fisher and Mary B. Harris

Expectancy violations and changes in perceived ability 201
By Joel A. Gold, Nancy C. Sherman, and William T. Neely

Machiavellianism as tough-mindedness 213
By William F. Stone and Raymond C. Russ

(OVER)

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Racial self-identification and self-concept by means of unobtrusive measures 221
By Dan M. Smith and Michael B. Mazis

The impact of teacher and student expectancy in a microteaching situation..... 229
By Esther H. Strauss and Jack Levin

Behavioral effects of viewing pornography 235
By Marvin Brown, Donald M. Amoroso, and Edward E. Ware

The effect of behavior relevant information on attitude-behavior consistency 247
By Russell H. Weigel and James T. Amsterdam

Integration theory and inoculation theory as explanations of the "paper tiger" effect. 253
By Arthur J. Farkas and Norman H. Anderson

Effects of information, payoff magnitude, and favorability of alternative settlement on bargaining outcomes 269
By Gary A. Yukl

REPLICATIONS AND REFINEMENTS

Academic achievement motivation and birth order in adults 283
By Frank H. Farley, Kim L. Smart, and Clay V. Brittain

The methodological implications of original and relayed messages in communication networks 285
By William C. Scott

An analysis of intervening variables in the attitude-behavior relationship 287
By Ronald W. Perry and David F. Gillespie

Affective style and person perception 289
By Ramadhar Singh

Some factors influencing aggression in two field experiments 291
By Mary B. Harris and George C. Samerotte

CURRENT PROBLEMS AND RESOLUTIONS

Attitudes of petroleum company executives and college students toward various aspects of the "energy crisis" 293
By Paul M. Muchinsky

Women's liberation: The development of a Likert-type scale 295
By Knud S. Larsen, William Cary, Barbara Chaplin, Donna Deane, Randall Green, William Hyde, and Kathie Kuleger

BOOKS RECENTLY RECEIVED 297

The Journal of Social Psychology, 1976, 98, 153-158

BODY-BUFFER ZONE AND VIOLENCE: A CROSS-CULTURAL STUDY*[1]

University of Port Elizabeth, South Africa

D. B. ROGER[2] AND E. E. SCHALEKAMP[3]

SUMMARY

The purpose of the present study was to compare the body-buffer zones of 15 violent and 15 nonviolent male colored prisoners in South Africa, both between and within each group, and to make cross-cultural comparisons between the present and previous data. The mean age of the *S*s in the violent group was 33.0 years, and 32.4 years in the nonviolent group. The body-buffer zone was measured by means of a behavioral task, and the results supported previous findings in that the violent *S*s had significantly larger mean zones than the violent ones ($p < .01$). However, the zones for the present *S*s were considerably larger than those of *S*s used in previous studies, a fact that may be ascribed to cultural differences.

A. INTRODUCTION

Personal space may be defined as the portable "bubble" of territory surrounding each individual that serves to regulate interpersonal spacing, and that varies in accordance with such factors as culture and personality (2, 4, 5, 6, 12, 14, 15, 17). Personal space is measured by either behavioral or simulated methods, the former involving "live" approaches by the *E* (4, 13) and the latter employing a doll placement or similar test (9, 10, 12). By using multiple behavioral approaches and calculating the enclosed area, Horowitz, Duff, and Stratton developed the concept of the body-buffer zone (4). This was found to vary considerably in relation to personality

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[1] This study formed part of the Master's dissertation of the first author. The authors would like to express their thanks to the Human Sciences Research Council for financial assistance, and to the National Institute for Crime Prevention and Rehabilitation of Offenders for their cooperation in the testing of the *S*s.

[2] Now at Fort Hare University, Alice, South Africa.

[3] Requests for reprints should be sent to the second author at the address shown at the end of this article.

factors, and was subsequently applied to the comparison of violent and nonviolent penitentiary inmates by Kinzel (8) and, subsequently, Hildreth, Derogatis, and McCusker (3).

Both of these studies reported a marked difference in zone size between the two groups, with the violent *S*s always having larger mean zones that the nonviolent *S*s. The findings regarding zone shape differed in that Kinzel's violent group had significantly larger rear zones than front zones, with an opposite trend for his nonviolent group. Hildreth *et al.* found that rear zones were significantly larger for both groups, a result that was confirmed in a study comparing deviant and normal adolescents by Newman and Pollack (11).

Body-buffer zone studies have, however, been subject to a number of methodological weaknesses, such as the use of extremely small samples. *S*s have almost most often been inmates of mental hospitals or penitentiaries, and the possible effects of incarceration *per se* cannot be overlooked. Furthermore, no cross-cultural studies of the body-buffer zone have been conducted, and prior investigations have used North American whites exclusively, or have employed culturally heterogenous samples without accounting for differences in spacing behavior.

In the present study, these shortcomings were circumvented by using larger samples composed entirely of colored ex-prisoners, and the body-buffer zone was investigated cross-culturally by comparing the results with those of previous studies.

B. Method

1. *Subjects*

*S*s were 30 colored males chosen from the files of the Port Elizabeth branch of the South African National Institute for Crime Prevention and Rehabilitation of Offenders (NICRO), a welfare organization attending to the needs of ex-prisoners. All *S*s were out of prison and living in the community at the time that the study took place, and they reported for testing in response to a written request from a NICRO social worker with whom they maintained regular contact after parole. Participation was thus voluntary, and no financial incentive was offered.

Fifteen of the *S*s were violent and 15 nonviolent, selection being based mainly on criminal record. The criterion for violent *S*s was a history of crime involving actual or threatened physical injury to another, while the nonviolent group included mainly petty criminals. Subjective evaluation of each *S* by the social worker formed the basis for final inclusion in the

samples. The mean age of the violent *S*s was 33 years (range: 26-38; SD = 19.85), and 32.4 years (range: 26-38; SD = 14.37) for the nonviolent *S*s.

2. *The Body-Buffer Zone Measure*

The body-buffer zone measure was similar to but not identical with those described in previous studies (3, 8, 11), and was conducted in a bare room measuring 10′ x 15′. *S* stood in the middle of one of the 10′ walls and 18″ away from it, facing the center of the room, and the following statement was made to him by the *E*:

> When people come together, they leave a certain distance open between themselves. This distance differs from person to person, and we would like to know more about this distance and how it differs. Mr. _____ will walk towards you slowly from various sides, and we would like you to tell him to stop as soon as you feel he is near enough, as soon as you begin to feel uncomfortable. It is impossible to make a mistake here, since there is no right or wrong distance; we would just like to see the distance you choose.

An unfamiliar colored male then approached *S* from a point directly opposite him, against the middle of the other 10′ wall. The approach was made one step at a time, until *S* indicated his discomfort. The point was marked on the floor at the end of the approacher's toe with a felt-tipped pen. The procedure was then repeated three times, with the *S* turning 90° to his right for each new approach. For the side and rear approaches, *S* was told that he might turn only his head to observe the approach. When *S* had left the room, the distances were recorded and the marks removed.

Previous studies have usually measured the body-buffer zone by having the *S* remain stationary in the center of the room, with the approaches conducted from four sides. The method employed in the present investigation ensured that each approach commenced from the maximum distance, and the approach was each time made along the same path.

The body-buffer zone areas were subsequently calculated by applying the formula, ½ base × perpendicular height, to the four acute-angled triangles formed by connecting the four stopping points.

3. *Data Analysis*

The data were analyzed by means of t tests. The mean areas of the front, rear, side, and total zones were compared between the groups, and in addition the mean areas of the front and rear and left and right zones were compared within each group. A significance level of $p < .01$ was maintained throughout the analysis.

C. Results

1. *Between the Groups*

The mean areas of all the zones—front, sides and rear—were significantly larger for the violent groups than for the nonviolent group ($p < .01$), indicating that violent disposition was an important factor in determining personal space needs (see Table 1).

2. *Within the Groups*

As may be expected, the left and right zones did not differ significantly in either group. Differences between front and rear zones were also insignificant in both groups.

D. Discussion

Previous studies comparing violent and nonviolent *S*s found significantly larger mean zones for the former group than for the latter. The present data indicate that the same trend is evident in the South African colored groups tested in this study. When actual zone dimensions are considered, however, certain differences emerge between the present and previous findings.

Kinzel (8) obtained mean zone areas of 29.3 and 7.0 square feet for his violent and nonviolent groups, respectively, and the corresponding figures for the study by Hildreth *et al.* (3) were 17.1 and 9.9 square feet. The mean scores in the present study were considerably larger for both groups: namely, 65.1 and 26.1 square feet for the violent and nonviolent *S*s, respectively. The zone shapes also differed in the present investigation, in that rear zones were not significantly larger than front zones in either group.

The differences between the present and previous studies may be due in part to the shortcomings of the latter mentioned in the Introduction. Previous studies have all used North American white or mixed samples,

TABLE 1
Comparison of the Zones of the Violent and Nonviolent Groups

Zones	Mean area (square cm) Violent	Nonviolent	*t*
Front	27464	10423	5.007
Rear	33054	13802	4.826
Left	29604	12442	4.572
Right	30913	11783	5.262

however, and apart from methodological considerations, these differences clearly have a cultural component. A tentative conclusion that may be drawn from the fact that both the violent and nonviolent *S*s tended to maintain larger zones than those of previous investigations is that the colored *S*s may have been generally more disposed towards violence than their American counterparts. This is supported to some extent by the position of the coloreds in South African society—studies have indicated that whites represent the level of colored aspirations, which are frustrated by political circumstances. On the other hand, coloreds reject African values, since they represent the opposite status pole to that of whites, and the coloreds are thus in a relative state of cultural anomie (7, 16).

An alternative interpretation of the findings is that coloreds may form a distinctly "noncontact" cultural group. Noncontact cultures are described as containing relatively more prohibitions against interpersonal contact than contact cultures, which results in a tendency to maintain greater areas of personal space (1).

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REACTIONS TO ABSURD HUMOR BY JEWS OF EASTERN AND WESTERN DESCENT*

Bar-Ilan University and Tel-Aviv University,

LEONARD WELLER, ELLA AMITSOUR, AND RUTH PAZZI

SUMMARY

It was hypothesized that Israeli Jews of Eastern descent would find absurd jokes less funny than would Israeli Jews of Western descent. Thirty-five respondents of each ethnic group reacted to five absurd and five nonabsurd jokes. As predicted, the former found abstract humor less funny that did the latter. Moreover, the respondents' educational level did not affect their reactions to the jokes. The element of incongruity was grasped by the Eastern *S*s but they did not consider it funny. It is suggested that enjoyment of absurd humor represents a temporary release from rational thought. Since those of Eastern descent come from a culture where rational logic was less emphasized, they have less need for such a release and, therefore, find absurd humor less funny.

A. INTRODUCTION

Approximately 50 percent of the population in Israel are immigrants or descendents of immigrants from Asia-African countries. This group of Jews is found overproportionately in the lower class, while Israelis of Western descent are found overproportionately in the middle class. The children of the former are less successful in school, with a lower proportion continuing to high school and college. Jews of Eastern and of Western descent have been shown to differ on a number of psychological factors, such as categorizing behavior (8), perceptual articulation (7), primitivity-sophistication as evidenced by the Human Figure Drawing (9, 10).

In this study we ask whether or not there are ethnic differences in reaction to absurd humor. Specifically, we hypothesize that Jews of Eastern descent would not find absurd jokes very funny. We follow the definition of the Oxford dictionary, which defines the absurd as "out of harmony

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with reason or propriety; incongruous, unreasonable, illogical. In modern use, esp. plainly opposed to reason and hence ridiculous, silly" (6, p. 43).

One important function of the humorous attitude at all levels is to relieve us from the burden of reality (3, p. 726). A delight in illogicalities and absurdities would seem to represent a temporary respite from the burden of suppressing relevant, frivolous, or illogical associations that a lifelong of training to be rational imposes on us. Since rational and logical thought is seen as characterizing Western thought more than Oriental thought, the Easterner would need this release less and consequently find absurd humor less funny.

The several studies which have examined national differences in humor, such as between American and English (3, p. 727), American and Japanese (4), and English and German (2), have for the most part failed to show significant differences. There is a paucity of research on intercultural differences although there are studies of the function fulfilled by humor in particular ethnic groups: e.g., Reik [see Flugel (3), p. 728] on Jewish humor and Burma (1) on black humor. The research most relevant to the present one was conducted by Kreitler and Kreitler (5), who were primarily interested in showing the relationship of cognitive attitudes to the absurd: namely, that only certain cognitive attitudes with regard to the absurd facilitate the reaction of laughter, while other cognitive attitudes are nonfacilitatory, and still others may be inhibiting. The investigators selected 92 5- to 6-year-old children of both sexes and of both ethnic groups randomly from four kindergartens in four different parts of Israel. Each child was asked to tell what he thought of each of 15 pictures that depicted absurd situations. Of particular interest is their finding that the children of Eastern descent were significantly less prone to grasp the absurdity and manifested laughter and smiling significantly less frequently than did children of European descent.

B. Method

In the selection of the jokes—both absurd and nonabsurd ones—we were careful to have all jokes understood by every *S*. This self-evident requirement excluded a wide range of jokes which was specific to either Western or Eastern culture. Political and religious jokes were also excluded in order to avoid the *S*'s reactions being affected by his attitudes.

After we ourselves chose a number of jokes we regarded as absurd, we asked 40 helpful listeners whether or not they considered them absurd. These judges were of both ethnic groups and represented various social

classes. Ninety percent agreement was required for a joke to be considered absurd or not. Unfortunately, some of the funniest jokes (in our opinion) were omitted because they failed to meet this standard. We further asked these judges to provide us with absurd jokes. Although the jokes are called simply "absurd" and "nonabsurd," they could perhaps be classified into "much more absurd" and "much less absurd," owing to the fact that there is a trace (be it so weak) of the absurd in almost every joke.

Since the Eastern *S*s were first-generation immigrants and since they might have found it queer to be told jokes by a woman, the jokes were recorded by a man.

From the pretest it appeared that some *S*s suspected us of camouflaging an intelligence test behind the facade of jokes. We therefore decided to tell the truth, without stating the hypothesis. They were told that we were making preparatory steps for a general research on humor. For that research we had to choose jokes that most people would regard as being funny. Therefore we needed a large number of "judges" who would give their opinion of the recorded jokes.

Our population consisted of 70 *S*s born and educated in Europe ($N = 35$) or in Asia-Africa ($N = 35$).

The *S* was asked to tell us after every joke whether he found it "not funny at all," "somewhat funny," "fairly funny," or "very funny." This evaluation was translated into a score of 0, 1, 2, or 3 points. Accordingly, since the *S* heard five absurd and five nonabsurd jokes, he could obtain a maximum of 15 points for the absurd and 15 points for the nonabsurd jokes. The number of points obtained by the members of each ethnic group was tallied. Two examples of absurd jokes follow:[1]

The customer to the kiosk-owner:
—"Give me some soda, please, but without lemon syrup."
—"Sorry, Sir, I cannot give you soda without lemon syrup, because I haven't got any lemon syrup left. Would you take some soda without strawberry syrup?"

A woman comes to consult the rabbi. She wants a divorce.
—"On what grounds?" inquires the rabbi.
—"On many grounds, but mainly because I think that my husband is unfaithful."
—"And what makes you think so?"
—"To tell you the whole truth rabbi, I suspect that our son is not his child.

[1] Copies of all the jokes are available on request to the first author at the address shown at the end of this article.

C. Results

Reactions to absurd and nonabsurd jokes were first cross-classified according to educational level of the respondent (elementary school *vs.* high school education). There was virtually no difference according to level of education. This is consistent with previous research which has not found education to be significantly related to humor (3).

For each ethnic group the laughter responses to the absurd and nonabsurd jokes were calculated. One t test was performed on difference in ethnic reactions to the absurd jokes and another on the difference in ethnic reactions to the nonabsurd jokes. These results show that the laughter responses to the absurd jokes were significantly lower ($t = 2.12$, $p<05$) among those of Eastern origin ($M = 5.5$) than among those of Western origin ($M = 10.7$), while the laughter responses to nonabsurd jokes were significantly higher ($t = 2.01$, $p<.05$) for those of Eastern descent ($M = 9.7$) than for those of Western descent ($M = 7.9$). The Westerners laughed more than Easterners, but this is due largely to the fact that they found the absurd so much funnier.

D. Discussion

We have established that Jews of Eastern descent found abstract humor less funny than Jews of European descent.

Many Eastern *S*s made spontaneous remarks about the jokes which they liked or disliked in the test and about humor in general. Western *S*s did not as a rule volunteer comments. *The remarks show that the element of incongruity was grasped by the Eastern Ss.* Why then did they not laugh? They did not consider the incongruities funny. A few commentaries by the respondents: After listening to a story (not reported here) with the melancholic conclusion that only one man in a million had the luck not to be born, an *S* of Eastern descent said in a reproachful voice, "What he says at the end is just a silly thing, of course. But the joke is altogether bad. There is no man who has no difficulties or problems in life. We must overcome them. To wish that people should not be born altogether is an insult to God!" The joke of a woman claiming that her husband was unfaithful was commented upon by an *S* who had migrated from Iraq and who did not think it was especially funny: "This is typical for a woman. She has been the unfaithful one, but she thinks that it was her husband!"

Since they had been told that they were serving as judges in the choice of jokes, some *S*s took upon themselves to explain why the absurd jokes had no value. Typical comments were: "A joke should have a moral"; or, "A joke

should make us laugh at something ridiculous which one can remember, but this is nothing, this is just childish"; or, "This is simply not logical at all."

These commentaries reveal that preferences in humor were dependent on habits of thought and mental attitudes rooted in cultural backgrounds. If our explanation is correct, then the reason why those of Western descent view the abstract jokes as funny is that having been trained in rational logic, they need a release, which is offered in the reaction to the absurd. Those of Eastern descent come from a mileu where rational logic was less emphasized and, therefore, have less need for such a release; consequently they are not so excited by the incongruity manifested in the absurd joke.

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THE RELATIONSHIP BETWEEN ORGANIZATIONAL STRATEGIES AND PERSONALITY CHANGE AMONG PEASANTS IN WEST MALAYSIA*

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SUMMARY

The aim of this study is to determine what type of organizational strategy has positive influence on the Attitudes, Behavior, and the "Need to achieve" of peasants in an agricultural development scheme in West Malaysia. The hypotheses advanced for testing were (*a*) a developmental strategy is positively related to Attitude Change, Behavior Change and the "Need to Achieve" Change of the peasants, (*b*) a directed strategy is negatively related to Attitude Change, Behavior Change, and the Need to Achieve change of the peasants. The *S*s were 37 male Malay peasants who were engaged in oil palm cultivation. About 60% of them were between 35 and 40 years, about 30% between 41 and 50 years, and the rest were above 51 but below 60 years. *S*s were interviewed personally with the aid of cross-culturally tested questionnaires. The results generally support hypothesis (*a*) and not hypothesis (*b*).

A. INTRODUCTION

Modernization is a complex process and it does not lend itself to easy definition. However, there has been some consensus about the salient characteristics of modernization. These are that a modernizing society would experience a degree of self-sustaining economic growth, some degree of diffusion of secular-rational norms, some increased degree of personal, social, and psychic mobility, and some transformation of the individual personality (9).

It has, therefore, been commonly accepted that personality change among rural peasants is crucial to set the process of modernization in motion. This has also been the assumption of an agricultural development

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agency in Malaysia. The Federal Land Development Authority has emphasized the need to "change . . . the attitudes, the thoughts and beliefs, and the behaviour of the people in the development process" (6, p. 2). To facilitate this process of personality change the Authority has opened up land development schemes to resettle peasants. The schemes are managed by Scheme Managers, whose function it is to integrate their four roles as administrator, planter, trainer, and community leader in the scheme. The peasants are as a result dependent upon the Manager because he allocates and supervises the work and is their social leader. Given such a situation we can assume that the organizational strategy the Scheme Manager adopts will have a considerable impact on the personality of the settlers.

The purpose of this study was to determine what type of organizational strategy had positive influence on the Attitudes, Behavior, and the Need to Achieve of the peasants. The relevant hypotheses to be tested were as follows:

1. A developmental strategy is positively related to Attitude Change, Behavior Change, and the "Need to Achieve" Change of the peasants.
2. A directed strategy is negatively related to Attitude Change, Behavior Change, and the "Need to Achieve" Change of the peasants.

B. Method

1. *Definition of Concepts*

a. Personality. Attitudes, behavior, need to achieve, and authoritarianism of peasants.

b. Attitude Change. A change from traditional attitudes to modern attitudes. An individual possessing modern attitudes is favorably disposed and a person possessing traditional attitudes is unfavorably disposed towards getting involved in thinking seriously about public issues, change programs, birth control, science, planning, world events, and new experience (7).

c. Behavior Change. Whether a person has changed from (*a*) not reading newspapers to reading newspapers (*b*) not being involved in organized public activities to being involved in organized public activities (7).

d. Need to Achieve. The urge to improve and excel (14).

e. An authoritarian. An individual who is conventional, submissive to authority, aggressive, anti-intraceptive, superstitious, mentally rigid, preoccupied in thinking in terms of power and dominating the weak, destructive, believes that wild and dangerous things are going on, and has an exaggerated concern over sexual "goings-on" (1, 2).

f. A developmental strategy. Similar to McClelland's optimal psychological conditions for change (11). This is done because McClelland has shown that the optimal psychological conditions for change can bring about the desired personality change. The desired personality change is here defined as the personality that can adjust, compete, and cooperate in a modern life. Therefore, *developmental strategy* can be defined as a situation where the peasants experience high Psychological Participation and high Two-way Communication with the Manager; and they perceive the Manager as being high on Tolerance of Freedom, Initiation of Structure, Consideration, Superior Orientation, Formal Position Power, and Helpfulness; and the peasants have high Respect and high Trust for the Manager.

g. A directed strategy. A situation where the peasants perceive the Manager as being high on Superior Orientation, Initiation of Structure, and Formal Position Power, and low on Helpfulness, Trustworthiness, Respectworthiness, Tolerance of Freedom, and Consideration; and the peasants experience low Psychological Participation and low Two-way Communication with the Manager.

h. Psychological Participation. "The extent to which the individual feels that he influences joint decisions made with his superior" (16).

i. Upward Communication. The extent to which subordinates feel free to talk to their superior.

j. Downward Communication. The extent to which a subordinate perceives his superior as informing him in advance about changes that will affect him.

k. Tolerance of Freedom. The followers' perception of their leader as to whether he "allows followers scope for initiative, decision, and action" (15).

l. Initiation of Structure. The leader's ability to define clearly his own role and let followers know what is expected of them (15).

m. Consideration. The followers' perception of their leader as to whether he "regards the comfort, well being, status, and (the) contributions of his followers" (15).

n. Superior Orientation. The extent to which followers perceive that their leader "maintains cordial relations with superiors, has influence with them, is striving for higher status" (15).

o. Formal Position Power. "The degree to which the position itself enables the leader to get his group members to comply with and accept his direction and leadership" (3).

p. Helpfulness. The extent to which the subordinate perceives his superior as being willing to go out of his way to help him, if he (the subordinate) asked for it.

q. Respect. The extent to which the subordinate respects the knowledge and judgment of his superior.

r. Trust. The extent of the "subordinate's trust or confidence in the superior's motives and intentions with respect to matters relevant to the subordinate's career and status in the organization" (13).

2. *Subjects*

This study was conducted on a Federal Land Development Authority resettlement scheme in West Malaysia. In this scheme which is called Bukit Besar, there were 372 peasant households in March 1972. However, only 37 peasants or 10% of the households in the scheme were selected by simple random sampling for study.

3. *Procedure*

The questionnaires administered to the respondents were Forms 5 and 6 of the Overall Modernity Scale (7), to measure Attitudes and Behavior of the peasants; the F Scale to measure Authoritarianism (1), and the Sentence Completion Measure of Achievement Motivation (14). The reliability of these personality measures was moderately high in comparison to those reported by the original authors. The split-half coefficient of reliability of Form 5 was .4423. However, the split-half coefficient of reliability of Form 6 was rather low: that is, .16. The split-half coefficient of reliability of the Sentence Completion Measure was .24, while the reliability of the F scale to measure Authoritarianism was .43.

The instruments used to measure leadership style of the Scheme Manager were the Superior Orientation scale, the Tolerance of Freedom scale, the Consideration scale, the Initiation of Structure scale (15), the Formal Position Power scale (3), and the Trust scale (13). The Psychological Participation scale (16) was used to measure the extent to which the peasants perceived that they participated in the decision making process. Three questions on a five point scale were used to measure Upward Communication between peasants and the Manager. One question on a five point scale was used to measure the extent of Downward Communication from the Manager to the peasant. One question on a five point scale was used to measure the peasants' perception of the Helpfulness of the Manager. The split-half coefficients of reliability of the above measures were Superior Orientation, .57; Initiating Structure, .77; Tolerance of Freedom, .90; Consideration, .94; Trust, .87; Psychological Participation, .92; and Formal Position Power, .86. The intercorrelations among the three

items to measure Upward Communication were .65, .73, and .52, respectively. Factor analysis was used to analyze the data.

C. Results

The results of the factor analysis for Bukit Besar are presented in Table 1.

1. *Factor 1: Effective Leadership Style*

The variables with the highest loadings on Factor 1 are the peasants' experience of Psychological Participation and Upward Communication with the Manager, the Manager's Superior Orientation, Consideration, Tolerance of Freedom, and Helpfulness, and the settlers' Trust for the Manager. Variables with secondary high loadings on Factor 1 are the peasants' Respect for the Manager and the Manager's Downward Communication with the settlers.

The results indicate that the peasants (regardless of whether they were high or low authoritarians) who perceived that they experienced high Psychological Participation and high Upward Communication with their Manager and who interacted with their Manager, whom they perceived as being high on Superior Orientation, Consideration, Tolerance of Freedom, Helpfulness and Downward Communication with settlers, did respect and trust him.

2. *Factor 2: From Dependency to Counterdependency*

The variables with the highest loadings on Factor 2 are the Need to Achieve of the peasants and the Manager's Formal Position Power. Variables with secondary high loadings on Factor 1 are the peasants' Attitudes and Upward Communication with the Manager, the Manager's Helpfulness, Downward Communication, and the peasants' Trust for the Manager.

The results indicate that the peasants who are high on Attitudes and the Need to Achieve and who perceived that they had high Upward Communication with the Manager and who interacted with their Manager, whom they perceived as being low on Helpfulness, low on Formal Position Power but high on Downward Communication with them, did not trust their Manager.

The results indicate that peasants who experience rising expectations and have a high Need to Achieve did not Trust their Manager whom they knew

TABLE 1
RESULTS OF FACTOR ANALYSIS FOR BUKIT BESAR[a]

Concepts	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	h^2
Attitudes	−.02	.33	.68	−.12	.01	.20	.63
Behavior	−.00	.04	.20	−.86	−.17	−.01	.81
Need to Achieve	−.07	.80	.00	−.03	−.03	−.07	.65
Superior Orientation	.55	−.14	−.32	−.09	−.17	.42	.66
Formal Position Power	.00	−.79	−.00	−.06	−.07	−.05	.64
Psychological Participation	.77	−.07	−.11	.02	−.27	−.06	.69
Authoritarianism	−.04	−.01	.11	.10	.12	.86	.79
Initiation of Structure	.03	.02	.00	.07	.94	.08	.90
Consideration	.76	.12	−.02	−.15	.27	.02	.70
Tolerance of Freedom	.73	−.05	−.15	.15	.11	−.34	.73
Upward Communication	.78	.28	−.35	−.01	−.08	−.02	.83
Downward Communication	.21	.26	−.84	−.05	.00	.05	.83
Helpfulness	.67	−.28	.24	−.39	.15	.08	.77
Trust	.87	−.16	.01	−.12	.03	.12	.82
Respect	.23	−.10	−.45	−.75	.12	−.13	.88

[a] Bukit Besar is the name of an agricultural development scheme in West Malaysia.

from verbal interaction to be unhelpful and without power. This may reflect a process of change from "dependency" to "counterdependency." The peasants were originally transplanted into a Scheme where the jungle was cleared for them, houses built for them, oil palm trees grown for them, and work created for them. They were evaluated and paid and protected by the Manager who was their imposed "father." This created in them a feeling of dependency on the Manager. With exposure to developmental news from the mass media, family planning pills from the Federal Land Development Authority, and growing indoctrination of the importance of science and technology and a stable income the settlers became aware and expressed demands on their "father." If the "father" is directive but not informally helpful and formally powerless, the peasants "rebel" against him. This situation we conceptualize as "counterdependency."

3. *Factor 3: Effective Leadership Style, Counterdependency*

The variables with the highest loadings on Factor 3 are the Attitudes of the peasants and the Manager's Downward Communication with the peasants. The variables with secondary high loadings on this factor are the peasants' experience of Upward Communication with the Manager, the Manager's Superior Orientation, Helpfulness, Tolerance of Freedom, the peasants' Respect for the Manager, and the peasants' Behavior.

The results indicate that peasants who were high on Attitudes and interacted with their Manager, whom they perceived as being high on Helpfulness, but low on Superior Orientation, and Tolerance of Freedom and with whom they perceived they had low two-way communication, did not respect the Manager.

The results are significant because they reflect a counterdependency situation. The more aware the peasants, the more demands they made on the Manager. If the Manager tried but was not able to meet these demands because he had no influence with his superiors, he was not respected by the peasant.

4. *Factor 4: Effective Leadership Style and Behavior Change*

The variables with the highest loadings on Factor Four are the Behavior of peasants and the peasants' Respect for the Manager. The variables with secondary high loadings on this Factor are the Manager's Helpfulness, Consideration, and Tolerance of Freedom.

The results indicate that if peasants who were high on Behavior interacted with their Manager, whom they perceived as being high on Help-

fulness and Consideration but low on Tolerance of Freedom, still respected their Manager.

The results indicate that a Manager who is Helpful, respected, and considerate can effect Behavior change. However, McClelland (11) proposed that to create Need to Achieve change a leader should also be Tolerant of Freedom. However, it is possible to argue that Behavior change can be effected without the persons undergoing Behavior change being given the freedom to experiment. This is a case of directed Behavior change by a Manager who is warm, respected, and helpful but dictates, and since followers like and respect him, they obey.

5. *Factor 5: Effective Leadership Style and Behavior Change*

The variable with the highest loadings on Factor 5 is the Manager's Initiation of Structure. The variables with secondary high loadings are the Behavior, Authoritarianism of the peasants, the peasants' experience of Psychological Participation, the Manager's Superior Orientation, Consideration, Helpfulness, and the peasants' Respect for the Manager.

The results indicate that low authoritarian peasants who are high on Behavior, high on experience of Psychological Participation, and who interacted with their Manager, whom they perceived to be incompetent in performing tasks, low on Consideration, low on Helpfulness but high on Superior Orientation, did not respect the Manager.

6. *Factor 6: Attitude Change Among Authoritarians*

The variables with the highest loadings on Factor 6 are the Manager's Superior Orientation and the peasants' Authoritarianism. The variables with secondary high loadings on this Factor are the peasants' Attitudes and the Manager's Tolerance of Freedom.

The results indicate that high authoritarian peasants who are also high on Attitudes perceived their Manager as being high on Superior Orientation and low on Tolerance of Freedom when compared to low authoritarian peasants. Here we deal with perceptions or the notion that people see and believe what they like to see and already believe. This behavior is marked among high authoritarians who are defensive, rigid, and fear ambiguity (10). An authoritarian feels secure when he can identify with an influential person (4), and not a person who is tolerant of freedom. Given this value system of the authoritarian, we propose that an authoritarian perceives his superior as being superior-orientated and not tolerant of freedom because he likes to perceive this way and, therefore, it gives him

more security to perceive this way. This perception may or may not be real (4). The results also indicate that high authoritarian peasants were more influenced by high status sources (8) and experienced attitude change when they interacted with a superior-orientated Manager.

D. Discussion

The results are theoretically significant because they support Pelz's (12) proposition that a leader is considered effective by followers if he is both client and superior-orientated. Gibb's (5) finding, that leaders who are considerate are regarded highly by followers, is also supported by the above results. A leader who is not helpful is not respected by followers. Therefore, it may be said that a leader who is effective is also a leader who is able to create the optimal psychological conditions for change. We also notice, from the above analysis, that variables that are important in creating Attitude, Behavior, and Need to Achieve change among high authoritarian peasants in the interaction between the peasants and Manager are closely related to the optimal psychological conditions for change. This gives validity to Hypothesis 1. On the other hand, the results do not generally support Hypothesis 2. In fact, the results point to the adverse consequences of a directed strategy. A directed strategy would result in a situation of counterdependency between the peasants and their Manager. In Factor 2 we find a positive relationship between an operant and a response measure. This has further implications for the conflict arising from a situation of counterdependency. If a peasant wants progress and actually thinks of it often, then his actions in a situation of "counterdependency" could generate conflict.

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GROUP SIZE EFFECTS ON CONFORMITY*[1]

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SUMMARY

A field experiment is reported which tests the hypothesis that conformity is an increasing concave downward function of the numerosity of a unanimous influence source. Thirty-three student *E*s presented petitions containing zero, four, eight, or 12 previous signatures to 300 male and female college students. The probability of signing increased from zero to four signatures, then leveled off. These results, as well as those of two pilot studies, generally support the hypothesis. A two factor theory of the effects of group size on conformity is proposed.

A. INTRODUCTION

The relationship between group size and social influence has sporadically attracted the attention of researchers since the early 1950's. The present state of knowledge, based largely on American *S*s, may be summarized by three propositions as follows:

I. The influence of a single individual on group opinion tends to decrease with increases in group size (e.g., 12, 27, 31);

II. At least under some circumstances, consensus within groups decreases with increases in group size (e.g., 12, 32; but *cf.* 15, 30);

III. The probability of social influence effects on an individual are an increasing, possibly concave downward function of the numerosity of a unanimous influence source (e.g., 2, 4, 10, 11, 14, 15, 19, 21, 27). Although this third proposition has been fairly frequently examined, previous results have not been as consistent as one might wish. In some of these studies, conformity has been an apparently linear increasing function of group size [e.g. (19) passersby who stopped], while others have found inverted

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U-shaped relationships (21) or relationships reminiscent of inverted W's (10). Not only do the empirical results deviate somewhat from Proposition III, but theoretical predictions do too. Asch (2), for instance, contends that the effects of group members do not sum, but rather the group size effect is due to "consensus." Krech, Crutchfield, and Ballachey (16) suggest that in some "real life" situations, conformity is a linear increasing function of group size. Clearly, though, development of a general theory of the relationship between group size and conformity requires some consistency in results of these studies, one would think. The intent of this paper is to provide several conceptual replications of previous studies, to examine further the form of the relationship between group size and conformity. Further, most of the previous research has centered upon ambiguous perceptual judgment tasks in which a correct response was possible. The present study examines the relationship between opinion conformity and group size in order to examine the generality of Proposition III.

Using the Crutchfield apparatus (6), Rosenberg (20, 21) found a linear increase in conformity as group size increased from two through three to four, but then found a significant decline in conformity as group size increased from four to five.[2] Since this function provides an interesting exception to Proposition III, a replication of Rosenberg's method was conducted in the first pilot study. Fifty-seven male students enrolled in an introductory psychology course at the University of Toronto during the fall of 1970 were assigned to groups of two, three, four, or five *S*s. Conformity was measured by the Crutchfield apparatus and 30 opinion items (29), 20 of which were critical, conformity trials. The method has been described more fully elsewhere (22, 23).

With mean conformity per group as the dependent measure, a simple ANOVA was done on the sine transformed data (to reduce the skew). The treatment effect was weak ($F = 2.65$, $df = 3/14$, $p = .09$). Further, the means were ordered as a linear increasing function of group size, with no indication of leveling off with larger group sizes (82% of the variance was accounted for by the linear component). These data are reported in Figure 1, with mean conformity per condition divided by maximum possible conformity per condition, to make these data points comparable to those to be reported in a second pilot study and the field experiment. The low power of the present experiment may be attributed to the small sample size, weakness of the manipulation (e.g., participants sat in cubicles and were

[2] A reanalysis of the data Rosenberg reported (20, p. 72) indicates the decline was significant in only one of his conditions.

aware of each other only through lights on their control panels), and the large number of other factors known to affect conformity [for example, see the extensive literature reviewed in Stang (24)]. Whatever the explanation, the results lend support to Proposition III, but fail to replicate Rosenberg's (21) finding of less conformity in groups of five than in groups of four.

The second pilot experiment provides a conceptual replication of the first, using the same opinion items but different *S*s, a different manipulation of numerosity of the influence source, and a paper and pencil measure of conformity. Most importantly, this pilot experiment used a wider range of group sizes than is possible with the Crutchfield apparatus. Thirty male and female undergraduates from a third year course in abnormal psychology at the University of Toronto during the Fall of 1970 served as *S*s, each randomly assigned to one of three conditions. "Attitude Survey" forms were prepared containing the first 15 items used in pilot experiment 1. Below each item was a nine-point scale, ranging from "very strongly agree" to "very strongly disagree," and room for checkmarks to indicate one's opinion. One, four, or eight checkmarks were placed in each booklet after each item, in positions corresponding to the supplied answers in pilot experiment 1. *S*s were told that the *E* was conducting an attitude survey and desired to establish a set of "standardized responses" to these items. Some of the booklets had been used before, *E* noted, but *S*s were to disregard any previous checkmarks when they made their answers.

Conformity scores were established for these items (10 critical, five noncritical) in the same fashion as described in pilot experiment 1. The main effect of number of previous responses on the questionnaire was significant ($F = 4.07$, $df = 2/27$, $p < .05$), with conformity increasing from the one checkmark to four checkmarks condition, and leveling off. The data (Figure 1) describe an increasing concave downward function in agreement with Proposition III.

The present experiment provides a conceptual replication of the two pilot experiments in a field setting, examining the effects of number of previous signers on the probability of signing a petition. The study was conducted by members of a social psychology course taught by the author during the Fall of 1973 following a plan similar to that suggested by Swingle (26).

B. Method

Three hundred petitions were prepared each bearing the statement "WE ARE INTERESTED IN ENHANCING THE APPEARANCE OF THE QUEENS COLLEGE CAMPUS. WE ARE INTERESTED IN KNOW-

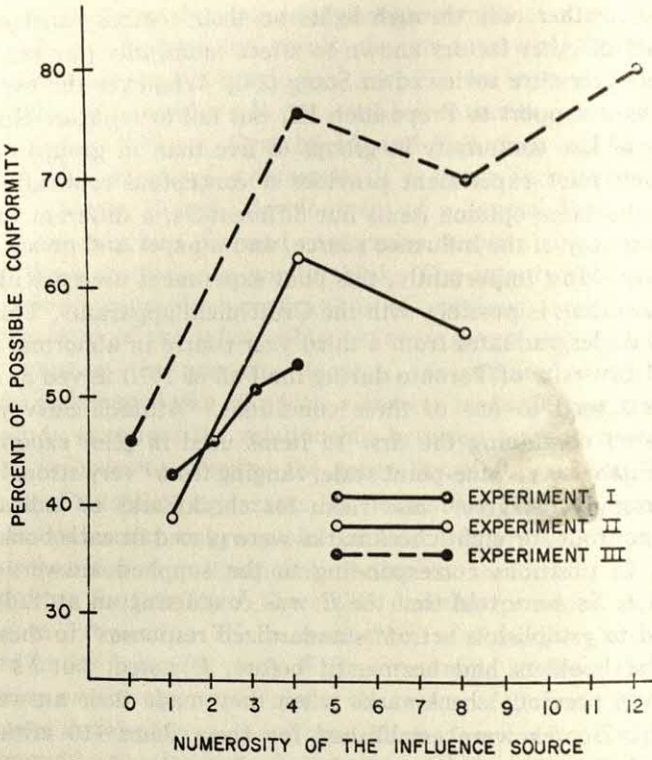

FIGURE 1
PERCENT OF MAXIMUM POSSIBLE CONFORMITY AS A FUNCTION OF NUMEROSITY OF THE INFLUENCE SOURCE IN THE TWO PILOT STUDIES (EXPERIMENTS 1 AND 2) AND THE FIELD EXPERIMENT (EXPERIMENT 3)

ING IF YOU WOULD AGREE WITH OUR PROPOSAL TO PLANT MORE SHRUBBERY AROUND THE MAIN ENTRANCE ON KISSENA BOULEVARD. IF YOU ARE INTERESTED, PLEASE SIGN BELOW." There were 75 petitions each bearing zero, four, eight, or 12 signatures. Each of 33 student *E*s took two or more petitions from each condition, shuffled them, and approached people on the Queens College campus asking them to sign. The *E*s were instructed to select *S* and request the signing without knowledge of the number of signatures provided on the petition presented. After *S* had signed or declined to sign, *E* recorded *S*'s sex and decision, and the number of previous signatures on the petition.

C. Results

The proportion of the respondents who agreed to sign the petition is indicated in Figure 1, as a function of the number of previous signatures. A chi square test on the frequencies indicates a main effect of number of previous signers approaching significance ($\chi^2 = 7.0$, $df = 3$, $p < .08$), but this effect is largely due to the increase in probability from zero to four signatures: the zero signature condition elicited fewer signatures than the others in combination ($\chi^2 = 6.51$, $df = 1$, $p < .025$), while these others (four, eight, and 12 signatures did not differ ($\chi^2 = .5$, $df = 2$, $p > .5$).

D. Discussion

The two pilot studies and the field experiment reported suggest that in a variety of situations, normative social influence is an increasing concave downward function of numerosity of the influence source: group size and conformity seem positively related only over a limited range of group sizes, beyond which the function levels off. It is also noteworthy that even over the range of group sizes where there was an apparently linear increasing relationship between these two variables, the relationship (under the present conditions of measurement, at least) was fairly weak. Other situational and experiential factors must account for far more variation in conformity than does the group size factor.

Because the present data are generally consistent with Proposition III outlined earlier, it may be worthwhile to consider two[3] interactive factors which might account for this relationship.

The first factor proposed is that of a linear increment in conformity with increases in the numerosity of the influence source. One might expect that the larger the group, the greater the pressure to conform (normative social influence) and/or the greater the probability that the group is correct (informational social influence). On this latter assumption, the reader is referred to Thorndike (28).

The second factor proposed is that of a ceiling effect, putting an upper limit on the extent of conformity that will occur with the specified *S*s under the specified experimental conditions. The operation of the ceiling has been discussed in other contexts as a "zone of acceptability" (17), an "equilib-

[3] A third factor, the credibility of the experimental manipulation, may occasionally be important. If the credibility of the manipulation decreases with increases in group size, then since suspicious *S*s are less influenced than nonsuspicious *S*s (1, 7, 9, 25), the effect of this factor might be to depress the ceiling somewhat with increases in group size. Such effects may have occurred in pilot experiment 2 reported above, as well as in other studies (2, 21).

rium point" (8), and in terms of "relative weighting" (5). It may be a consequence of *intrapersonal* factors, such as an appraisal of "optimum conformity" (e.g., 13), or a feeling of reactance (3) induced by the perception of the influence attempt, or *situational* factors, such as cultural differences (e.g., 18), or the degree to which the experiment arouses suspiciousness and thereby reduces conformity (1, 7, 9, 25). In any case, the location of the ceiling probably varies from situation to situation, population to population.

The linear factor and the ceiling factor may interact to produce three types of result. First, the conditions of the experiment may be such that the most numerous influence source used is still not able to induce conformity at or near the ceiling. In this case, the effects of the ceiling factor would not be visible, and the resultant function would be a linear increase. This may have occurred in the first pilot reported here. On the other hand, some experiments may reach the ceiling with the least numerous influence source, and consequently, only the ceiling effect (i.e., no relationship between conformity and group size) would be observed. This might occur under situational conditions which maximize conformity, such as ambiguous tasks (e.g., 11, 14). The third type of interaction would be one in which the function begins with a linear increase, then levels off as the ceiling is approached. It should not be difficult to devise experiments to test this hypothesis.

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THE EFFECT OF THREE MODEL CHARACTERISTICS ON IMITATION AND LEARNING*

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SUMMARY

The effects of the model characteristics of stigma, friendliness, and affect on imitation and learning were studied in three field experiments using 100 male and 100 female adults as *S*s. The results revealed a significant modeling or imitation effect, although specific model characteristics seemed to have no effects on imitation. Learning was affected by model characteristics such that characteristics which increased attention to the model also tended to increase learning of the model's responses. Females imitated and learned more of the model's responses than did males, possibly because the model was female.

A. INTRODUCTION

Many investigators have become interested in the components of the observational learning or modeling process. One aspect which has been studied is the effect of certain characteristics of the model on subsequent imitation and learning of his responses by observers. The experimental literature contains many examples of studies looking at model characteristics, including such items as similarity to or attraction toward the model (6, 32), sex of the model (10), dominance or power of the model (36), race of the model (40), age of the model (3), competence or status of the model (24, 33), experience of the model (26), as well as creativity or flexibility of the model (7, 17). The present series of experiments was designed to examine the three model characteristics of stigma, friendliness, and affect, which have not yet received a great deal of experimental attention.

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Bandura (1) discusses the difference between learning a response and the willingness to perform it. The latter is affected by the consequences of performing the action, while the former is affected by several cognitive processes, one of which is attention. This view is to be distinguished from one such as Skinner's, for example, which states that reinforcement has a direct strengthening effect on the learning of a response and as such is seen as a necessary condition for learning (18).

According to Bandura's analysis it was predicted that a model characteristic which increased the attention paid to the model would also increase learning of the model's responses by observers. Similarly, it was predicted that a model characteristic which involved reinforcing or punishing consequences for imitating would, respectively, either increase or decrease imitation by observers.

B. Experiment I: Model Stigma

1. *Introduction*

A series of experimental investigations have examined the process and problems of interaction between normal and stigmatized individuals. Kleck, Ono, and Hastorf (22) hypothesized that because of the feeling that a stigma will have a generalized tendency to spread from the stigmatized person to people he interacts with, nonstigmatized people will tend to avoid any long term relationship with a stigmatized person lest the implication of the latter's stigma spread to them. In their study, as well as in a subsequent study (21), it was found that normal *S*s tended to display signs of discomfort when interacting with a handicapped interviewer.

Comer and Piliavin (11) examined the effects of interaction between normals and the handicapped from the perspective of the handicapped participant. They discovered that not only the normal participant but also the handicapped participant contributed cues of discomfort when interacting. Doob and Ecker (13) found that if normal *S*s thought that they would have to interact with a handicapped person in the future they were less likely to comply with a request than if they thought that by complying they could avoid further contact. All these studies suggest an unwillingness on the part of normal *S*s to interact with handicapped individuals.

There has only been one study to date which specifically studied the effect of a stigmatized model on subsequent imitation of modeled behaviors. Davis (12) investigated whether the variables of physical handicap of the model and sex of the observer influenced an observer's imitation of

behaviors exhibited by a videotaped handicapped male model. The results revealed a significant modeling effect, such that the two modeling groups showed a significantly higher number of the modeled behaviors than a no-model control group. A sex difference was also found, indicating that males imitated the handicapped model significantly more than females on two of the three criterion measures, as well as for total responses.

The present study differed from the Davis study in several ways. It used normal *S*s, while the Davis study used retarded *S*s. Furthermore, it looked at the effect of a live female model, while the Davis study looked at the effect of a videotaped male model. In addition the present study examined learning, as well as imitation, and was carried out in the field, while the Davis study took place in a laboratory. Finally, the present study used an eyepatch as evidence of stigma, so that the same model could serve as both stigmatized and nonstigmatized, whereas the Davis study used a wheelchair as the evidence of stigma.

On the basis of the assumption that a stigmatized model would appear more distinctive and thus increase an observer's attention, it was predicted that *S*s would learn more of the behaviors exhibited by a stigmatized than by a nonstigmatized model. It was also predicted that since imitation of a stigmatized person might result in the "spread" of the stigma to the imitator, there would be less imitation of a stigmatized model than of a nonstigmatized one. Finally, a general modeling effect was predicted, such that *S*s observing either model would behave more similarly to the model than those in a no-model control condition.

2. *Method*

a. Subjects. The sample consisted of 30 male and 30 female adults approached at a major shopping center in Albuquerque, New Mexico. The only restriction placed on approaching a potential *S* was that he or she was alone and had not previously observed the *E* and model working together. Both the *E* and model were females in their late twenties and served for all three experiments.

b. Design and manipulation. *S*s were randomly assigned to conditions in a 3 × 2 factorial design. The independent variables were model characteristic (model-eyepatch, model-no eyepatch, no-model control) and sex of *S*. The manipulation of stigma was accomplished by having the model wear a black eyepatch.

c. Procedure. The experimental paradigm for all three experiments involved a supposed marketing research survey in which the model and *S*

were approached by the *E* and asked to participate in a short survey that involved guessing the prices of five items. The five items had been selected from an original list of 20 items, since they produced the most normal distributions of guesses in a pilot study. The model's price guesses were then calculated to be approximately three standard deviations above the pilot study mean for each of the five items. It was felt that if *S*s who observed a model gave significantly higher price guesses than the no-model control group *S*s, this would be a clear indication of imitation.

Upon agreeing to serve in the survey, the model and *S* alternated in guessing prices, with the model always going first. The model was then thanked, and after she left *S*s were asked if they would mind answering a few more questions. No *S*s refused. They were then asked to remember the model's price guesses, which served as the measure of learning. After the learning data were obtained, *S*s were also asked to rate the model on a semantic differential measure which was designed to assess the validity of the model characteristic manipulation. This measure employed nine pairs of bipolar adjectives (pleasant-unpleasant, nice-not nice, friendly-not friendly, happy-sad, angry-pleased, annoyed-amused, unusual-common, distinctive-ordinary, familiar-unique) which could be rated on a five point scale ranging from extreme agreement with one adjective to extreme agreement with its bipolar opposite. No explanation was given to the *S* for selecting him rather than the model or for the procedure which took place after the model left, since it was felt that the *S*s would assume the choice and questions had to do with a marketing research technique. This seemed to be confirmed by the fact that very few *S*s questioned the *E* with respect to their selection or the questions concerning the model that followed. Those who did ask were told that they would be given an explanation at the completion of the questions. When the procedure was completed *S*s were thanked and any requests for an explanation of the study were honored. In the no-model control condition, the identical request and price guessing procedure was carried out, the only difference being the absence of a model.

3. *Results and Discussion*

a. Validation data.[2] Nine 2 × 2 factorial analyses of variance were computed on the semantic differential data. *S*s who observed the stigmatized model rated her as more distinctive ($\overline{X} = 2.85$), while *S*s who

[2] A more complete copy of the statistical data and tables, as well as reprints, may be obtained from the first author at the address shown at the end of this article.

observed the nonstigmatized model rated her as more ordinary ($\overline{X} = 3.60$; $F = 5.34$, $df = 1/36$, $p < .05$). No other pairs of adjectives discriminated significantly between the two model conditions. Further evidence for the validity of the manipulation is provided by the model's report that she noticed people staring at her eyepatch. It was also noted that several *S*s spontaneously mentioned the eyepatch to the *E* after the model had left. It was, therefore, concluded that the manipulation of stigma had been successful.

b. Imitation data. A 3 × 2 factorial analysis of variance of treatment by sex was performed on the *z* scores for *S*'s price guesses computed with the means and standard deviations of the pilot data summed over the five items. This analysis revealed significant treatment ($F = 25.79$, $df = 2/54$, $p < .01$) and interaction ($F = 5.27$, $df = 2/54$, $p < .01$) effects. The effect of sex did not reach significance ($F = < 1$, $df = 1/54$, $p > .05$). *Post hoc* comparisons using Tukey's *HSD* test indicated that both modeling groups showed significantly higher scores (more imitation) than did the no-model control group, although the experimental groups did not differ significantly from each other.

An examination of the interaction indicated that there were differences in imitation between men and women at different treatment levels, such that higher price guesses were observed for males than for females in the no-eyepatch and no-model conditions, and higher price guesses for females in the eyepatch condition. There are several possible explanations for the occurrence of this interaction. One such explanation stems from various studies of attitudes toward the disabled. The basic finding of the majority of these studies is that American females are more accepting of physical disability than are American males (20, 23, 41). Since American women seem to be more accepting or sympathetic toward physical disability, it is possible that they do not find the possible spread of stigma from the stigmatized person to themselves as aversive a prospect as do men, thus accounting for the observed interaction.

Another explanation, which is consistent with the Davis (12) study, is that when one observes someone who is similar to himself (same sex) who is handicapped, feelings of sympathy or perhaps empathy may arise which influence positively subsequent imitation behavior. One must be cautious, however, about drawing comparisons between the present study and the Davis study because of the differences in procedure and *S*s.

c. Learning data. A chi square analysis of the number of price guesses made by the model which were remembered exactly by *S*s in each condi-

tion was nonsignificant, as was a 2 × 2 unweighted means factorial analysis of variance of the discrepancies between the actual model's price and the *S*'s remembered price (discrepancy scores), converted to standard deviation units and averaged over the five items (all $ps > .05$).

The discrepancy scores in cents summed over the five items of *S*s who had guessed at the price of all five items were analyzed by a 2 × 2 unweighted means factorial analysis of variance. The results revealed a significant treatment effect indicating that the *S*s in the eyepatch condition remembered the model's responses more accurately than *S*s in the no-eyepatch condition ($F = 5.46$, $df = 1/18$, $p < .05$). This is in accord with the predictions and lends some support to the hypothesis that stigma increases attention paid to the model and therefore learning of the model's responses. There was also a significant interaction observed with the use of this measure, indicating that the differences in recall scores between the men in the eyepatch and no-eyepatch conditions was much larger than the difference in recall scores between the women in the two conditions ($F = 5.42$, $df = 1/18$, $p < .05$). *Post hoc* comparisons using Tukey's *HSD* method indicated that there was a significant difference between males in the two conditions, but no significant difference between females in the two conditions ($HSD = 2.56, p < .05$). It is possible that this interaction is due to the sex difference in attitudes toward disability previously mentioned. If in fact American women are more accepting than males of physical defects, then they may not pay as much attention to a defect as males, since it may not be as repugnant or curious to them. This would account for the larger discrepancy in remembering between males than between females in the two conditions.

Since the previous analysis included only those *S*s who could remember all five of the model's price guesses, the next measure was constructed to include all *S*s. The assumption was made that those who could not remember a particular price guess of the model at all would remember as little (have as large a discrepancy score) as the least accurate person for each item. The largest obtained discrepancy score for each missing price guess was then inserted for each *S* with a missing price guess, and a 2 × 2 factorial analysis of variance was computed on these data. The results of this analysis did not reveal a significant treatment effect ($F = 3.49$, $df = 1/36$, $p < .05$) although they did reveal a significant sex effect indicating that females remembered more than males ($F = 61.27$, $df = 1/36$, $p < .001$). One possible explanation for these results is that similarity to a female model may have caused females to pay more attention to the model

and consequently remember more of her responses. However, this result may also be an artifact of the measure used. Since this measure was calculated inserting the largest discrepancy score for *S*s who did not recall one or more of the model's guesses, it might be that women did not remember the model's prices better, but merely were more willing to guess at the model's prices in front of a female *E*, while males may have been less willing to guess.

A significant interaction was also obtained with this measure indicating that females who had interacted with a model without an eyepatch remembered more than any other group, while males who had interacted with a model without an eyepatch remembered less than any other group ($F = 59.24$, $df = 1/36$, $p < .001$). A *post hoc* comparison using Tukey's *HSD* procedure confirmed these differences at the $p < .05$ level ($HSD = .783$, $p < .05$). A possible explanation for this result is that the important characteristic functioning to increase attention and therefore learning for females was similarity to the model, while for males it was the curiosity toward a person with a stigma.

C. Experiment II: Model Friendliness

1. *Introduction*

A review of the literature reveals that the effect of model nurturance on subsequent imitation is at best equivocal, some studies showing an increase in imitation after interaction with a nurturant model (2, 29, 37, 42), some revealing no effect of nurturance on imitation (14, 27, 34, 38), and still others showing a decrease in imitation after a nurturant interaction (4, 16). This inconsistency of results indicates that the effects of nurturance on imitation are not general but specific, depending on a variety of variables, such as the valence of the behavior to be imitated. It is possible that a friendly interaction with a model increases the rewarding or reinforcing value of imitating him in a situation in which the behavior to be imitated is either positive or neutral. However, if the behavior to be imitated is aversive (as in having to donate a desired item to charity), then imitation may be reduced, since the *S* feels he will not be punished by a nurturant model if he fails to imitate.

All of the preceding research except one study used children as *S*s; that study looked at imitation of a nurturant or nonnurturant model by adults (15) and found greater imitation of a model described as warm than of one described as cold. That study used a tape-recorded rather than a live

model, neurotic psychiatric outpatients as *S*s, and did not measure acquisition but only imitation.

In the present experiment, it was predicted that *S*s who interacted with a friendly model would learn more of her behaviors than *S*s who interacted with a neutral model or no model because the association of friendliness and reward would cause *S*s to pay more attention to a friendly model. Similarly, since a friendly model would presumably be liked more than a neutral model and it should be more rewarding to imitate such a model, it was predicted that *S*s who interacted with a friendly model would imitate her behaviors more than *S*s who interacted with a neutral model or no model.

2. *Method*

a. Pre-experimental validity check on the manipulations. It was felt that since the model characteristics of friendliness and affect were not as clear-cut as that of stigma, the manipulations would be checked before the actual experiments. First the model was trained to act in a friendly or neutral manner, as well as to display positive, negative, or neutral affect (for Experiment III) following a procedure developed by Stevenson and Allen (39). Then the model and *E* were videotaped interacting as they would in the actual experiments, with the model displaying the appropriate model characteristics. These videotaped skits were shown to two classes of students (*N*s = 25 males and 30 females) who rated the skits on the semantic differential measure described in Experiment I. The results revealed that the model was viewed as more friendly, pleasant, nice, happy, pleased, and amused when she portrayed a friendly role, and more unpleasant, not nice, not friendly, sad, angry, and annoyed when she portrayed a neutral role. It was therefore concluded that the manipulation of friendliness was valid.

b. Subjects. The sample consisted of 30 male and 30 female college students approached at various locations on the University of New Mexico campus. The only restrictions placed on approaching a potential *S* were that he or she must be alone and must not have previously observed the *E* and model working together.

c. Design and manipulation. *S*s were randomly assigned in a 3 × 2 factorial design, the independent variables being model characteristic (friendly, neutral, no model) and sex of *S*.

The manipulation of friendliness or neutrality was accomplished by having the model approach an *S* and ask for the time. In the friendly

condition the model approached the *S* and said, "Excuse me, do you have the time? I forgot to set my watch this morning. Thank you very much." The model also smiled, made eye contact with the *S*, and leaned toward the *S* in order to decrease physical distance. If the *S* did not have the time the model smiled and said, "Thanks very much anyway." In the neutral-model condition the model approached the *S*s and said, "Excuse me, do you have the time?" She also attempted to keep her face expressionless, make little or no eye contact, and keep a greater physical distance. Whether or not the *S* gave her the time, the model merely nodded her head in response. The no-model control condition was conducted similarly to the one described in Experiment I.

d. Procedure. After the model approached an *S* and asked for the time in a friendly or neutral manner, the *E* who had remained close by would then approach and ask the model and the *S* if they minded participating in a short survey. The model would consent and then if the *S* consented the *E* proceeded with the survey. If the *S* refused, the *E* and the model would move aside as if to complete the survey, and then the model would approach the next *S*. With the exception of the manipulation, the procedure in the present experiment was identical to that described in Experiment I.

3. *Results and Discussion*

a. Validation data. Nine 2 × 2 factorial analyses of variance were computed on the semantic differential data given to *S*s. None of these analyses yielded significant treatment effects although two of the analyses did yield significant interaction effects. The data from the adjective pair pleasant-unpleasant revealed that females who observed the friendly model found her more pleasant than the other three groups ($F = 5.74$, $df = 1/36$, $p < .05$). An analysis of variance on the data from the adjective pair friendly-not friendly also revealed a significant interaction indicating that females who observed a neutral model found her less friendly than the *S*s in the other groups ($F = 4.84$, $df = 1/36$, $p < .05$).

The fact that *S*s in the two modeling conditions did not generally view the model differentially may be due to the length of the price-guessing interaction which followed the manipulation since in the original validation study *S*s who viewed only the manipulation phase on videotape did rate the model as more friendly in the friendly condition and more neutral in the neutral condition.

b. Imitation data. A 3 × 2 factorial analysis of variance was calculated

with the use of the z scores for Ss' price guesses computed with the means and standard deviations of the pilot data summed over the five items. The results revealed a significant treatment ($F = 32.44$, $df = 2/54$, $p < .01$) and sex effect ($F = 9.406$, $df = 1/54$, $p < .01$). Tukey *post hoc* comparisons of the treatment means revealed again that the two modeling groups showed more imitation (higher z scores) when compared with the no-model control group ($HSD = 3.807$, $p < .05$).

Females imitated the female model significantly more than did males regardless of experimental condition possibly because, since the model was female, the female Ss may have felt she was more similar to them and therefore imitated her behavior more. Other studies have also found more imitation of models by the Ss who believed that they were similar to the model in some way (5, 8, 31, 32).

c. Learning data. There were no significant effects of treatment, sex, or interaction for any of the measures of learning: number of the model's price guesses remembered exactly by Ss, discrepancy scores converted to standard deviation units and averaged over the five items, discrepancy scores in cents summed over the five items for those who had remembered all five of the model's guesses, and discrepancy scores summed over the five items assigning those who forgot a guess the highest discrepancy score in that category (all ps $> .05$). Since validation data indicated that the model was not viewed differently by Ss in her friendly and neutral roles, the lack of significant differences in learning of her behaviors is not surprising.

D. Experiment III: Model Affect

1. *Introduction*

There has been a large amount of theoretical and experimental work examining the effects of affect expressed by a model. Modeled expressions of positive affect have been shown to increase altruistic behavior (19, 28), imitation (25, 35), disinhibition of deviation (30), and resistance to extinction (9), by the observer. These results indicate that positive affect is functioning as a vicarious reinforcer. Alternatively, modeled expressions of negative affect appear to function as aversive stimuli decreasing such behaviors as altruism (19), imitation (25, 35), and disinhibition of deviation (30).

The present study was designed to examine the effect of expressions of affect by a model on subsequent imitation and acquisition of her behaviors. It was predicted that since any display of affect should increase the atten-

tion paid to the model, either through an empathic process or because of the increased distinctiveness of a model who displayed affect, more learning would occur in the *S*s who observed both positive or negative affect compared with *S*s who observed a model display no affect, or *S*s who observed no model at all. Moreover, since a display of positive affect would serve as a vicarious reinforcer, while a display of negative affect would serve as a vicarious punisher, imitation (which is affected by response consequences) would be affected differentially: *S*s observing positive affect would imitate the modeled behaviors more than *S*s observing negative affect. It was also predicted that there would be a large modeling or imitation effect in the three modeling conditions when compared with the no-model control condition.

2. *Method*

a. Pre-experimental validity check. As described in Experiment II, videotapes of the model displaying positive, negative, or no affect were rated by *S*s in a pilot study. When the model displayed positive affect she was rated by *S*s as more pleasant, nice, friendly, amused, pleased, and happy than when she displayed negative affect. The ratings of the model in the no affect condition fell between those of the positive and negative affect conditions, thus indicating that the manipulations were valid.

b. Subjects. The sample consisted of 40 male and 40 female college students approached at various locations on the University of New Mexico campus. The only restrictions placed on approaching a potential *S* were that he or she must be alone, and must not have previously observed the *E* and model working together.

c. Design and manipulation. *S*s were randomly assigned to conditions in a 4 × 2 factorial design, the independent variables being model characteristic (display of positive affect, negative affect, no affect, or no-model control) and sex of *S*.

The affect manipulation occurred when the *E* asked the model to participate in the survey. Positive affect was expressed nonverbally by the model's making frequent eye contact with the *E*, smiling, nodding her head, and moving toward the *E* to decrease physical distance between them. Positive affect was also expressed verbally by the model who said, "Sure, I'll be glad to participate, I enjoy these things." In the negative affect condition, the model tried not to make eye contact with the *E* and in fact looked away, frowned, shook her head, and moved away, thereby increasing physical distance. The model also expressed negative affect

verbally by saying, "Well okay, but I really don't like the idea of these things." In the no affect condition the model neither smiled nor frowned, did nothing to increase or decrease physical distance, and merely said, "Okay" when asked to participate.

d. Procedure. In this experiment, as in the first one, the model attempted to remain in the proximity of the *E*. The *E* would then approach a potential *S* and ask if he would mind participating in a short survey involving guessing the prices of five items. If the *S* consented the *E* replied, "Would you mind if I asked another person to participate, since it goes more quickly if I interview two people at a time?" No *S*s refused, and the *E* then asked the model to participate in a similar manner. The model then responded with either positive, negative, or no affect being careful to place herself so that the *S* could observe her reaction. After this point the procedure was identical to that of Experiments I and II except that the model maintained her role, displaying either a warm and positive, cold and negative, or neutral attitude when responding. *S*s were thanked, and explanations were given when requested.

3. *Results and Discussion*

a. Validation data. Nine 3 × 2 factorial analyses of variance were performed on the semantic differential data. The results revealed that when the model displayed positive affect she was viewed as significantly more pleasant ($F = 27.61$, $df = 2/54$, $p < .001$), nice ($F = 22.918$, $df = 2/54$, $p < .001$), friendly ($F = 17.59$, $df = 2/54$, $p < .001$), pleased ($F = 18.03$, $df = 2/54$, $p < .001$), and amused ($F = 23.91$, $df = 2/54$, $p < .001$) than when she displayed negative affect. The ratings of the model when she displayed no affect fell between the positive and negative affect ratings. The results thus reveal that the manipulations were valid.

b. Imitation data. A 4 × 2 factorial analysis of variance computed with *z* scores of *S*s' price guesses calculated with the means and standard deviations from the pilot data yielded only a significant treatment effect ($F = 9.077$, $df = 3/72$, $p < .01$). Tukey *post hoc* comparison tests revealed that significantly more imitation occurred in the three modeling groups compared with the no-model control group, although there were no differences among the modeling groups ($HSD = 6.19$, $p < .01$). This is the identical result obtained in the previous two experiments, which confirms the prediction of the large modeling or imitation effect, but does not confirm the prediction of differential imitation according to treatment condition.

c. Learning data. *S*s in the affect groups were more likely to remember

the model's exact price guesses than were those in the no affect groups ($X^2 = 18.958$, $df = 2$, $p < .05$ with Yates' correction). This result lends support to the prediction of more learning in the two affect groups.

A 3 × 2 unweighted means factorial analysis of variance computed for the discrepancy scores converted to standard deviation units and averaged over the five items revealed significant sex ($F = 5.889$, $df = 1/52$, $p < .05$), treatment ($F = 4.985$, $df = 2/52$, $p < .05$), and interaction effects ($F = 3.84$, $df = 2/52$, $p < .05$). These results reveal that females remembered significantly more than did males. Tukey *post hoc* comparisons, however, showed no significant differences occurring between the means of *S*s in the three affect conditions ($HSD = .567$, $p > .05$). The interaction data revealed that the discrepancy between women and men in the neutral condition was much larger than for women and men in the other two conditions. A possible explanation for this result may be that a display of positive or negative affect is a more crucial factor for attention than is similarity, so that males and females in the positive and negative conditions did not differ in their amounts of learning. However, when no affect was displayed, then similarity between the female *S*s and female model may have caused them to remember more than males in the neutral condition. Since this interaction was not observed in any of the other measures, however, it must be considered relatively weak in importance.

A 3 × 2 unweighted means factorial analysis of variance of the discrepancy scores in cents summed over the five items for *S*s who remembered all items yielded no significant effects of sex, treatment, or interaction ($ps > .05$).

Finally, the 3 × 2 factorial unweighted means analysis of variance on the discrepancy scores summed over the five items, assigning those who totally forgot a modeled response the largest discrepancy score in that category revealed only a significant effect of sex of *S* ($F = 4.207$, $df = 1/54$, $p < .05$), again indicating that females learned significantly more than did males.

E. General Discussion and Conclusions

1. *Imitation Effects*

Perhaps the clearest effect which was obtained, and which appeared in all three of the experiments, was a strong modeling effect such that observers imitated the price guesses of a model when compared with a control group in which no model was present. This suggests that the modeling

stimuli not only conveyed information to the observer about the appropriateness of certain responses but exerted a strong influence on the *S*s to imitate. *S*s demonstrated a clear tendency to use the model's behavior as a guide for their own behavior.

Although there was a strong overall modeling effect, the results of the three experiments also revealed relatively few significant effects of treatment, sex, or interaction on imitation. None of the studies confirmed the predicted effects of the model characteristics although there were several unpredicted interaction effects and one unpredicted sex difference. A possible explanation for this lack of results might be that since *S*s did not directly observe the consequences that could be experienced as a result of imitating (e.g., seeing the spread of stigma from the stigmatized model to a nonstigmatized individual), they did not infer that in fact if they imitated, these consequences would accrue to them.

2. *Learning Effects*

Although the model characteristics studied did not seem to affect performance, they did tend to have the predicted effects on learning, at least for some of the measures. In the experiments looking at the effect of a stigmatized model and the effect of affect expressed by a model the predicted groups did in fact remember more of the model's behaviors. This result lends support to the hypothesis that model characteristics which increase attention paid to the model will also increase learning of the model's behaviors. It therefore appears that a female model who is stigmatized (wears an eyepatch) or who displays affect (positive or negative) increases the attention paid to her by observers.

3. *Sex Differences*

In both Experiment I (model stigma) and Experiment III (model affect), using several different dependent measures of learning, females remembered significantly more of the behaviors of the female model than did males, regardless of experimental condition. In Experiment II (model friendliness) females imitated the female model significantly more than males, although this effect was not found in the other two studies. A possible explanation for these results is that females felt more similar to a female model than did males, since it has been shown that feelings of similarity by an *S* for a model increase not only imitation but also learning of the model's behaviors (8, 31, 32).

4. *Conclusions*

The results of this series of experiments suggest the utility of using the paradigm employed in these experiments for studying the effects of model characteristics in a field situation. However, the failure of the friendly-neutral manipulation to be noticed by *S*s in Experiment II suggests that such a manipulation would need to be carried out throughout the entire interaction, as was the affect manipulation in Experiment III, in order to assess its effects. A second type of measure, besides the price guesses already reported, also failed to show any effects. In all three experiments the model performed a series of five irrelevant novel verbal (e.g., saying, "Hmm, now let's see, $5.00.") and five irrelevant physical (e.g., crossing her arms over her chest) behaviors as she made her guesses. However, in all the experiments, almost no one imitated her irrelevant behaviors (five, six, and three *S*s in the three experiments, respectively) or were even able to recall them (six, five, and seven *S*s in the three experiments, respectively). Not only were these totals too small to show differences between groups, but their very low absolute level suggests that perhaps adults, unlike children, tend to notice primarily those behaviors of a model which are relevant to a task at hand. Future research will be necessary to see in what ways adult responses to a model's characteristics in a field situation differ from the more frequently studied reactions of children in laboratory paradigms.

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EXPECTANCY VIOLATIONS AND CHANGES IN PERCEIVED ABILITY*[1]

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SUMMARY

An investigation of the effect of inconsistent outcomes (e.g., success following expected failure) on judgments of ability, motivation, and positive and negative evaluation was carried out. Descriptions of an individual which varied as to the portrayal of his general ability and motivation (high or low) and subsequent success or failure were administered to 109 male and female undergraduates who then rated his ability and motivation and made evaluative judgments of him. Consistent with an equity model, it was found that inconsistent outcomes (for example, high ability-high motivation-failure) lead to significant changes in perceived ability but not motivation. It was posited that the instability of the ability, as opposed to motivation, ratings was due to the employment of descriptions of general rather than specific ability, and consequently in most evaluative situations ability will tend to be the less stable of the variables.

A. INTRODUCTION

Drawing conclusions about the abilities and motivations of others and making evaluative judgments based on these conclusions is an enterprise in which all of us have indulged at one time or another. The particular degree to which each of these factors—i.e., ability and motivation—contribute to the evaluative judgment of others has been a central issue in attribution theory. Heider (3) stated that "people are held responsible for their intentions and exertions but not so strictly for their abilities" (p. 112). Thus praise and blame of others would appear to depend on their motivations rather than their talent.

In line with this, Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum

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(13), in a theoretical review, cited studies by Jones and deCharms (5), Schmitt (10), and Weiner and Kukla (12) which covered a range of situations calling for evaluative responses and concluded that moral judgments were consistently linked to motivations rather than to ability.

Evaluative judgments have been found to be influenced not only by ability and motivation but also by the outcome of a specific task. For example, Weiner and Kukla (13) found that reward was consistently related to success and punishment to failure. These studies dealing with moral evaluations have employed ability, motivation, and sometimes success-failure as independent variables.

Another line of investigation has varied success and failure and employed judgments of ability and motivation as dependent variables (1, 4, 6). These general findings have been that inconsistent outcomes, i.e.—success following expected failure or failure following expected success—have led to attributions of motivation, while consistent outcomes have led to attributions of ability.

However, a more recent study (9) manipulated both ability and motivation, as well as outcome, and subsequently gathered evaluative ratings of target persons in addition to subjective judgments of their effort and ability. Results showed that *S* were forced to account for the success of a low ability person by attributing high effort to him and that high motivation produced more positive evaluations under low than under high ability. Thus apparently as perceived motivation increased under low ability, evaluative ratings followed.

A theory of the attribution process based upon an equity model which fits quite well with the above findings and interpretation has been posited and supported by Taynor and Deaux (11). In general, the equity model implies that since investments should be directly proportional to rewards, outcomes which are perceived as producing rewards which are not proportional to investments should lead to changes in the perceived nature of the investments. It was found that target persons who were depicted as being in a situation which was inconsistent with their perceived role were evaluated more positively when they were successful than individuals in a congruent role situation. Further, judgments about their motivation increased in order to justify the incongruent role behavior. Similarly, if the equity model applies in the present studies, in a situation where, for example, a low ability and low motivation target person succeeds, evaluations of him should be more favorable than when he fails and in order to explain the out-of-role performance (failure is expected), shifts in perceived ability or motivation should occur.

Most of the research has posited and found that motivation has been the less stable of the variables and thus should shift. This research has employed very specific tasks which depict specialized ability rather than generalized intellectual and motivational variables. Something as characteristic of a person as his established work or study habits is perceived as relatively stable and not subject to capricious whims. Moreover, making judgments about expenditure of effort is relatively easy, at least when compared to the difficulty in ascertaining another's general ability or "intelligence." For these reasons it was predicted that in a situation pertaining to general academic ability and broad motivational predispositions unexpected outcomes are more likely to be accounted for by changes in judgment of ability rather than motivation. Thus, within the present context it was suspected that findings would be contrary to those found in situations confined to a task calling for very specialized ability. It was predicted that inconsistent outcomes would result in the re-evaluation of ability rather than motivation.

Two sets of hypotheses were tested. The first set dealt with affective evaluations of the target person: (*a*) Differences in positive and negative evaluations should be greater under high and low motivation than under high and low ability. (*b*) More positive evaluations should occur under success than under failure.

The second set of hypotheses dealt with judgments of ability and motivation: (*a*) The high ability-high motivation-success and the low ability-low motivation-failure groups will be rated differently on both ability and motivation. (*b*) The inconsistent conditions (high ability-high motivation-failure and low ability-low motivation-success) will continue to show differences in the motivation but not in the ability ratings. Again the rationale here is that motivation is clearly visible, while ability is more abstract and less stable and thus will shift under discrepant information in order to produce consistency with the outcome.

B. Experiment 1

1. *Method*

a. Subjects. Sixty-three male and female students enrolled in an undergraduate psychology course served as *S*s.

b. Stimulus materials. Four different portraits of a fictitious student were produced which varied systematically regarding the portrayal of the student's intelligence and motivation. For example, the low ability-low motivation portrait was as follows:

John Stuart had always been a mediocre student; even in grade school and high school, he had not been very interested in academics, nor had he shown any particular aptitude. So his performance in college (2.00 GPA) was expected. His courses were in education and sociology. John seemed never to be at a loss for ways to avoid studying. It would be interesting to follow him through a typical day. John gets up at 10:00 A.M., even though he has a 9:00 class. He decides to cut his 11:00 class and goes over to the Union and plays pool until lunch time. At 12:30 he and some friends wander back to the cafeteria and spend a leisurely hour eating and talking. After some thought on the matter, he decides to make his 2:00 class, since there was an exam that day. His other class loses out to a group of friends playing frisbee. He goes to the magazine stand and picks up some new comic books, which he takes back to the dorm and reads until dinner. After dinner he comes back to the dorm and watches reruns of *Bonanza, McHale's Navy,* and *I Dream of Jeannie.* After his shows are over, he decides that he'd better study for a half hour or so; so he turned on his stereo and books it for a couple of hours. Then he goes back and finishes a Western he had been reading. At 11:30 there is a *Godzilla* movie on TV that he couldn't miss. He goes to bed at 1:00 A.M.

This was fairly typical of John Stuart's four years as an undergraduate. During his senior year he applied to law schools. His preadmission law boards were low—350, which is the 7th percentile. He was accepted at only one school—Ohio Northern, a school which has difficulty in attracting applicants. He barely scraped through law school having a hard time with the material, putting in a few hours, and earning a GPA of only 2.00. The critical test was yet to come: the Ohio State bar exam, which everyone wishing to be a lawyer in Ohio must take, but only 50% of those taking it pass. Before it is taken, there is a six week period of intensive study. John's study habits during this period were no different from those all through college. Finally the day came for the Ohio State bar exam. It was gruelling as was expected. Now all that awaited was notification of whether he had passed.

The remaining portraits were changed appropriately. For example, in the high-ability high-motivation portrait, John Stuart was depicted as working from early morning until late at night, taking difficult courses, and earning top scores on the law boards.

c. Procedure. The four portraits were randomized and distributed to the *S*s in class along with scales for rating motivation, ability, and probability of success. *S*s were told that they would be reading an actual case of a student named John Stuart and subsequently were asked to rate him on intelligence, motivation, and the probability that he would pass the bar exam. Both ability and motivation were rated on nine point scales from 1 (poor) to 9 (outstanding) for motivation, and from 1 (below average) to 9 (genius) for intelligence. Probability of passing was rated on a 10 point scale anchored at 100% and 0%.

In addition to these ratings the degree of positive or negative evaluation was measured by an index on cognitive structure developed by Gold, Cowles, and Woulff (2).

2. *Results*

A series of 2 × 2 unweighted means analyses of variance Kirk (7) were carried out upon the dependent variables of intelligence, motivation, and probability of success in order to determine whether the manipulations had indeed been valid and upon the affective evaluation measure in order to test hypothesis 1. The means are presented in Table 1.

a. Intelligence. The dependent measure of intelligence ratings showed a significant ability main effect ($F = 55.10$; $df = 1,59$; $p < .001$) and a significant motivation main effect ($F = 5.75$; $df = 1,59$; $p < .05$). No significant interaction was found.

b. Motivation. The differences between the high and low motivation conditions on the motivation ratings were also highly significant ($F = 611.86$; $df = 1,59$; $p < .001$), as was the difference between the ability groups ($F = 13.78$; $df = 1,59$; $p < .01$). The interaction was significant but quite small compared to the main effects ($F = 6.35$; $df = 1,59$; $p < .05$).

c. Probability of passing. The analysis of the probability of passing ratings showed significant main effects for both ability ($F = 27.18$; $df = 1,59$; $p < .001$) and motivation ($F = 21.11$; $df = 1,59$; $p < .001$). The interaction was not significant.

It can be seen from Table 1 that the mean probability of passing ratings were as expected with the high-high and low-low conditions scoring high and low, respectively, and the two mixed conditions (high-low and low-high) both scoring at approximately 50% probability.

TABLE 1
MEAN INTELLIGENCE, MOTIVATION, AND PROBABILITY OF SUCCESS RATINGS AND SCORES OF AFFECTIVE BALANCE (BAL): EXPERIMENT 1

Dependent measures	Condition			
	High ability High motivation	High ability Low motivation	Low ability High motivation	Low ability Low motivation
Intelligence	6.43	6.71	3.92	5.00
Motivation	8.50	3.48	8.23	2.07
Probability of success	.79	.57	.54	.29
Bal	.79	.19	.52	−.02

Note: Since a few *S*s either failed to fill out the structural measure or chose only a single adjective, the *N*s in some cells for Bal were slightly reduced and varied between 13 and 21.

d. Affective balance. Scores on the measure of affective balance (Bal) showed only a significant motivation main effect ($F = 11.36$; $df = 1,56$; $p < .01$) with the high motivation group having significantly more positive evaluations. The difference between the high and low ability conditions was not significant. Thus hypothesis 1 was supported.

3. *Discussion*

The highly significant ability and motivation main effects for the dependent variables of intelligence, motivation, and probability of passing reflected the effectiveness of the manipulations.

Hypothesis 1 stated that differences in positive and negative evaluations should occur between the high and low motivation conditions but not between the high and low ability groups. The analysis of the Bal scores showed a significant difference only between the motivation conditions.

An interesting aspect of the results was that a significant main effect for ability occurred for the motivation ratings and a significant motivation effect occurred for the ability ratings. The effect for the motivation ratings was in the expected direction with the high ability group scoring higher than the low ability group. The intelligence rating results showed just the opposite effect; i.e., the low motivation condition was perceived as being more intelligent than the high motivation condition. It appears as though the perception of high effort worked to depress the perception of ability, whereas the perception of high ability inflated the perception of motivation.

C. Experiment 2

1. *Introduction*

Since the manipulation of ability and motivation showed highly significant differences for both the intelligence and motivation ratings and since highly significant differences in the probability of passing ratings were found, the manipulations were considered to be valid. The second study then was an attempt to discover the effects of providing information as to a success or failure outcome on the intelligence and motivation ratings and upon the affective evaluations (Bal).

2. *Method*

a. Subjects. One hundred and nine male and female students enrolled in a course in social psychology at the University of Maine served as *S*s.

b. Stimulus materials. The four portraits described in Experiment 1

were employed in the present study. In addition a second page was added to each portrait which conveyed the information that John Stuart had either passed or failed the bar exam.

c. Procedure. The procedure was identical with that employed in Experiment 1 with the exception of the deletion of the probability of passing rating scale from the test booklet.

3. *Results*

Since the second study was more complicated than the first, equal N analyses of variance were carried out in order to facilitate the computational procedures. Ss were randomly discarded within each group yielding all Ns equal to 12.

a. Ability and motivation ratings. In order to compare the ability and motivation ratings for the treatment groups, each set of ratings was standardized separately upon the mean and standard deviation of the distribution of its respective ratings. The resulting standard scores were then entered into a $2 \times 2 \times 2 \times 2$ split plot analysis of variance (7) with ability, motivation, and outcome acting as unrepeated variables and the standardized ratings acting as a repeated variable. The means for all of the dependent variables are presented in Table 2.

The ability, motivation, and success-failure main effects were all significant (Ability: $F = 74.64$; $df = 1,96$; $p < .001$; Motivation: $F = 91.31$; $df = 1,96$; $p < .001$); Success-failure: $F = 13.13$; $df = 1,96$; $p < .001$). Significant interactions were found between each of the above variables and the standardized ratings (Ability × Ratings: $F = 48.44$; $df = 1,96$; $p < .001$; Motivation × Ratings: $F = 129.38$; $df = 1,96$; $p < .001$; Success-failure × Ratings: $F = 8.46$; $df = 1,96$; $p < .01$).

Since the interactions between each of the independent variables and the

TABLE 2
MEAN INTELLIGENCE AND MOTIVATION RATINGS AND AFFECTIVE BALANCE SCORES (BAL): EXPERIMENT 2

Dependent measures	Condition: Success H.AB. H.MOT.	Success H.AB. L.MOT.	Success L.AB. H.MOT.	Success L.AB. L.MOT.	Failure H.AB. H.MOT.	Failure H.AB. L.MOT.	Failure L.AB. H.MOT.	Failure L.AB. L.MOT.
Intelligence	.97	.87	−.67	−.08	.18	.62	−.97	−.92
Motivation	1.00	−.68	.67	−.80	1.03	−1.04	.88	−1.06
Bal	.97	.81	.65	.08	.50	−.23	−.47	−.30

Note: AB. = ability; Mot. = Motivation; H. = High; L. = Low.

ratings of intelligence and motivation were all significant, simple main effects tests were carried out for each interaction. The tests for the ability × rating interaction showed a significant difference between the high and low ability conditions on intelligence ($F = 121.77$; $df = 1,96$; $p < .001$) but not on the motivation ratings. The simple effects tests for the motivation × ratings interaction showed a significant difference between the high and low motivation conditions on the motivation ($F = 222.08$; $df = 1,96$; $p < .001$) and on the intelligence ($F = 4.33$; $df = 1,96$; $p < .05$) ratings. The difference between the motivation groups on the intelligence ratings was quite small compared to that on the motivation ratings. Finally, the simple effects tests for the success-failure × ratings interaction indicated that the manipulation of outcome had its effect upon the intelligence ratings ($F = 20.98$; $df = 1,96$; $p < .001$) and not upon the motivation ratings ($F < 1.00$).

The hypotheses dealing with the rating variables dealt with differences between specific cells: i.e., the high-ability high-motivation and low-ability-success and failure conditions. These predictions were tested through one tailed t tests, but since the four way interaction was not significant, error terms for each comparison were based upon the independent samples t formula (8). The prediction that the high ability-high motivation-success and low ability-low motivation-failure conditions would show results comparable to those in Experiment 1 was confirmed. Significant differences were found between these conditions for both the intelligence ($t = 8.18$; $df = 22$; $p < .001$) and motivation ($t = 13.29$; $df = 22$; $p < .001$) ratings. It was also predicted that the inconsistent conditions would show differences on the motivation but not on the intelligence ratings. This was also confirmed: the high ability-high motivation-failure and the low ability-low motivation-success conditions were significantly different on the motivation ($t = 11.09$; $df = 22$; $p < .001$) but not on the intelligence ($t = .66$ n.s.) ratings.

b. Affective balance. A 2 × 2 × 2 analysis of variance was carried out on the Bal scores. Significant main effects were found for all three independent variables, as well as a significant three way interaction (Ability: $F = 14.33$; $df = 1,96$; $p < .001$; Motivation: $F = 5.56$; $df = 1,96$; $p < .05$; Success-failure: $F = 29.40$; $df = 1,96$; $p < .001$; Ability × Motivation × Success-failure: $F = 5.69$; $df = 1,96$; $p < .05$). Hypothesis 2 predicted a success *versus* failure main effect, and this prediction was strongly supported. An examination of the three way interaction through simple main effects tests showed that under success the only significant differences

occurred between the low-low condition and each of the others; i.e., no differences were found between any conditions where the target person was portrayed as being high on at least one of the variables. On the other hand, under failure, differences occurred only between the high-high conditions and all of the others. The success-failure comparisons for each ability motivation combination produced differential effects only where the target person was portrayed as being high on one variable and low on the other. The simple effects tests are reported in Table 3.

4. *Discussion*

The results of Experiment 2 supported the hypothesis that *S*s alter their judgments of general ability when success or failure is an unexpected outcome. Whereas in Experiment 1 differences were evidenced between the high-high and low-low conditions on both the ability and motivation ratings, in Experiment 2 no difference was found between the high-high failure and low-low success conditions on the ability ratings. Thus general ability did tend to be a less stable variable than generalized motivation and was modified when the outcome was inconsistent with expectations.

In terms of the evaluative ratings Experiment 1 supported the past findings; i.e., differences in evaluation occurred between the motivation but not the ability conditions. However, in Experiment 2, the differences in evaluation occurred for both variables with the ability variable producing a considerably larger effect.

The strongest finding in Experiment 2 was for the success-failure effect. In previous studies failure resulted in the administration of punishment,

TABLE 3
ANALYSIS OF VARIANCE OF SIMPLE EFFECTS FOR AFFECTIVE BALANCE SCORES: EXPERIMENT 2

Source	*df*	*MS*	*F*
H.AB. *vs.* L.AB. at H.MOT. Succ.	1	.613	n.s.
H.MOT. *vs.* L.MOT. at H.AB. Succ.	1	.163	n.s.
H.AB. *vs.* L.AB. at L.MOT. Succ.	1	3.195	7.00**
H.MOT. *vs.* L.MOT. at L.AB. Succ.	1	1.983	4.345*
H.AB. *vs.* L.AB. at H.MOT. Fail.	1	5.64	12.35***
H.MOT. *vs.* L.MOT. at H.AB. Fail.	1	3.20	7.02**
H.AB. *vs.* L.AB. at L.MOT. Fail.	1	.03	n.s.
H.AB. *vs.* L.AB. at L.AB. Fail.	1	.17	n.s.

Note: AB. = ability; Mot. = Motivation; H. = High; L. = Low; Succ. = Success; Fail. = Failure.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

while in the present experiment it resulted in negative evaluations of the target person. Most of the effect was due to the difference between success and failure for the conditions where the target person was portrayed as being high on one variable and low on the other. Under success, for both the high ability-low motivation and low ability-high motivation conditions, the evaluations were quite positive, but under failure the evaluations of these same target persons became strongly negative. Thus it appears that *S*s tended to disregard the variable on which the target person was portrayed as being low when he was successful but to employ that variable in forming their evaluations when he failed. The differences in evaluation between success and failure for the conditions where the target person was portrayed as being either high or low on both variables were not nearly as precipitous.

Changes in evaluation occurred when a variable previously disregarded (for example, ability in the low ability-high motivation-success condition or motivation in the high ability-low motivation-success condition) was again considered (for example, ability in the low ability-high motivation-failure condition). The interesting finding was that the strongest differences in perceived ability between success and failure outcomes occurred for the high-high and low-low conditions. This seems reasonable, since the outcome expectation was clear under these conditions as shown by the probability of passing data in Experiment 1, and thus a restructuring of the perceived role of the variables must have occurred to bring them into line with the unexpected outcome. One implication of the findings is that success seemed to cover flaws: persons who had at least one important positive characteristic were judged favorably even if their remaining assets were minimal, while failure led to a negation of an individual's positive attributes.

A second implication is that when an individual did not perform according to expectations, a restructuring of his perceived attributes occurred, and it appears as though general ability was the variable which received the restructuring.

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MACHIAVELLIANISM AS TOUGH-MINDEDNESS*

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SUMMARY

Eysenck's Inventory of Social Attitudes was presented together with the 20 Mach TV items to a heterogeneous sample of 206 white American *S*s. It was hypothesized that Eysenck's T dimension possesses conceptual validity and that previous studies have inadequately operationalized this variable. The present paper was designed to test the hypothesis that the Machiavellianism scale is a better measure of tough-mindedness than the scale devised by Eysenck. Factor analysis indicated two orthogonal factors best defined as social conservatism and Machiavellianism. A correlational analysis based upon total radicalism (R) scale scores suggested that R does seem to accord reasonably well with current conceptions of economic radicalism. In turn, Mach scores but not tough-mindedness (T) scores are independent of R. These findings, together with the moderate correlation between Mach and T support the authors' contention that Eysenck's second political attitudinal factor, tough-mindedness, is more appropriately defined by Mach scores than by the T scale.

A. INTRODUCTION

Eysenck, in *The Psychology of Politics* (5), has argued for a two-factor description of political ideology. The first factor, radicalism, dealt with the familiar left-right continuum. The second factor was suggested to Eysenck by William James's (10) discussion of the tough- and tender-minded. James described the tough-minded person as practical, hardheaded, fact-minded, and egotistical in dealing with other people. The tender-minded person, on the other hand, is inclined toward the theoretical, is idealistic, humanistic, and altruistically oriented. Through factor analysis of responses by British *S*s, Eysenck developed attitude scales for the measurement of the two dimensions: R (radicalism/conservatism), and T (tough-minded/tender-

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minded). He contended that these two dimensions are orthogonal. Further, he suggested that the extremity of a political group's philosophy would relate to the tough-mindedness of the group's members. Specifically, he believed that English Fascists and Communists, the parties at the two extremes of the British political system, would both be more tough-minded than members of the more centrist parties.

The two-factor theory of political ideology recommended itself to students of political behavior for two reasons: First, the scheme added a plausible second dimension to the right-left terminology commonly used to describe political attitudes. Second, Eysenck's (5) theory went beyond mere description to suggest ties between tough-mindedness and personality, and the possible mechanisms by which R and T may independently develop in the individual. In simple learning theory terms, he posited that R attitudes are acquired through operant conditioning and T attitudes through classical conditioning. Eysenck (4, 5, 6) presented research findings for British samples in support of the two-factor hypothesis, and he also found the expected interparty differences in tough-mindedness.

Although the theoretical arguments for two-factor theory are elegant, the balance of empirical evidence to date does not support the theory. Eysenck's own evidence was severely criticized (1, 9). Christie (1), for example, challenged the evidence upon which Eysenck based his conclusion that British Fascists and Communists are more tough-minded than Conservative, Liberal, or Socialist party members.

Schatz (13) attempted to investigate what the T scale does in fact measure. In accordance with the earlier findings of Ferguson (7, 8) and the analysis of Rokeach and Hanley (12), Schatz emphasized the dimensions of religionism and humanitarianism, into which categories the T scale items may be separated. Schatz found, in his American sample, that one subset of T, religionism, correlated positively with conservatism. The second T subset, humanitarianism, correlated significantly with radicalism. In addition, De Fronzo (3) also has questioned Eysenck's assumption of orthogonality between T and R.

The foregoing studies show scanty evidence for an independent tough-mindedness (T) dimension. The T scale which Eysenck developed seems to measure authoritarianism, humanitarianism, and radicalism, in equal amounts. There is little evidence to support the assertion that T is an independent dimension of political ideology. It is possible, however, that the operational measures are faulty rather than the conception of tough-

mindedness itself. If the T scale is invalid, the negative findings of investigators using the scale do not necessarily refute the two-factor theory of political ideology.

Given that a two-factor solution to the problem of describing political ideology is elegant and intuitively plausible, it seems worthwhile to consider alternative measures of T. One possible alternative has been suggested by Stone (15), who proposed that Machiavellianism could be construed as "tough-mindedness." This idea was briefly considered by Christie (2, p. 5) in his early thinking about Machiavellianism, but he discarded use of Eysenck's T scale in favor of independently developed scales (the Mach scales) defined with reference to Machiavelli's writings.

A striking parallel between Machiavellianism and tough-mindedness emerges from consideration of the research findings reported by Christie and Geis (2) regarding the behavioral correlates of Mach scale scores. These authors reported that the Machiavellian individual is a practical and fact-oriented person, swayed neither by his emotions nor by sentimentality when dealing with other people. High Machs are high on Anomia, which would seem to parallel the cynicism of the tough-minded; the High Mach is hostile, suspicious, has little faith in human nature, and shows external control expectations. It is important to note that such "tough-mindedness" in the High Mach is not equivalent to authoritarianism; Christie and Geis reported that correlations between Mach scores and the F scale approach zero. Furthermore, the Mach items are relatively "content-free" and thus are not as subject to changing mores as Eysenck's T items. Finally, as required by two-factor theory, there is evidence to indicate that Machiavellianism is independent of liberalism-conservatism (2).

The present study was designed as a preliminary test of the hypothesis that Machiavellianism, as measured by the Mach IV scale, better fits the theoretical conception of tough-mindedness than does Eysenck's T scale. Specifically, it was hypothesized that Mach scores would be uncorrelated with radicalism, whereas T and R would be significantly correlated. Further, the theoretical argument presented here suggests that Machiavellianism and T should be moderately correlated.

Although better measures of liberalism-conservatism are now available (11, 14), it was decided that Eysenck's original R scale should be used in this initial study along with the T and Mach scales. An effort was made to administer the scales to a sample heterogeneous in age, sex, and occupation.

B. Method

1. *Subjects*

The *Ss* were 206 native, white students, 91 men and 115 women, attending psychology and education courses during the 1973 summer session at the University of Maine. Half of the *Ss* were full-time college students, about 30% were public school teachers, and the remainder came from various other walks of life. The mean age was 26 years, with a range from 15 to 61 years.

2. *Questionnaire*

The questionnaire contained, in random order, 39 of the 40 items from Eysenck's Inventory of Social Attitudes (5, pp. 122-124), and the 20-item Mach IV scale (2, pp. 17-18). Minor changes in the wording of Eysenck's items were made to accord with contemporary language usage in the United States. Mach items were interspersed randomly with the Eysenck items. *Ss* were asked to respond on a six-point scale, ranging from "Agree Very Strongly" to "Disagree Very Strongly," with no undecided or neutral point.

3. *Procedure*

Ss were given the questionnaire during their class periods; the classes ranged in size from 8 to 39. All *Ss* were asked, by their instructors, to complete the questionnaire on a voluntary basis. Altogether, *Ss* in 13 different classes were tested.

C. Results and Discussion

1. *Factor Analysis*

Responses to the 38 items comprising the Mach, R, and T scales were factor analyzed by the principal components method. The first two factors, accounting for 23 percent of the total variance, were subjected to a varimax rotation.

Factor I, which accounts for 61 percent of the variance common to the two factors, is defined by the Eysenck R and T items, and seems clearly to represent Radicalism. Items loading highest on Factor I were those advocating trial marriage (.80); favoring easing of divorce laws (.63); favoring abolition of Sunday Blue Laws (.59); opposing the need to "go back to religion" (−.57); one item from Mach IV favoring euthanasia (.54). These

and other high loading items seem to represent social radicalism, which is overrepresented on the R scale. The two items representing economic radicalism had significant but lower loadings on the factor (favoring socialism, .35, favoring nationalization of industries, .19).

The items loading on Factor II were mainly Mach items, although the highest loading was for an Eysenck R and T item, "The Japanese are by nature a cruel people" (.53). Other high loading items were Machiavellian statements summarized as follows: never tell your real reasons unless useful (.51); men won't work hard unless forced (.49); It is wise to flatter important people (.49); and opposing complete trust in another (.45). Sixteen of the 20 Mach IV items had significant loadings on Factor II; thus the factor seems to represent Machiavellianism with an ethnocentric tinge, as exemplified by the "Japanese" item and also by significant loadings of such items as those advocating beatings for violent criminals (.41); sterilization of persons with hereditary defects (.41); branding conscientious objectors as traitors (.34); and characterizing blacks as inferior to white people (.31).

The first two factors extracted seem clearly to represent Radicalism and Tough-mindedness, the first defined by items making up Eysenck's R scale, the second by Christie's Mach Scale items. The elegance of this solution is slightly marred by the low loading of items representing economic radicalism on Factor I and the intrusion of items having ethnocentric content into Factor II. These results are not surprising, however, considering the predominately social-religious-ethnocentric content of Eysenck's scales.

Subsequent correlational analyses were undertaken to clarify the obtained relationships, with the use of Eysenck's Radicalism as the reference variable.

2. *Correlational Analysis*

Radicalism seems adequately defined by Eysenck's R scale. In the present study, for example, economic items (e.g., "Ultimately, private property should be abolished, and complete socialism introduced") correlate highly with total R score (.49 for this item), but not with T (.08 for the same item). Items expressing social radicalism, such as the "trial marriage" item previously referred to, also are highly correlated with R (r = .72 for this item). Thus, total R seems to be an adequate if not an ideal definition of liberalism-conservatism, the first of Eysenck's two factors.

Whereas the definition of R seems reasonable, there are many indications that T is not independent of R. The correlation between R and T is

significant ($r = -.29$, $p < .001$). In fact, this correlation is an underestimation because of the way Eysenck balanced radical and conservative T items in constructing his T scale. When direction is disregarded, the mean correlation between T items and total R score is .48. T items correlated only .32 on the average with total T score, and the average correlation of the R items with the R total was .49. Thus the findings of previous authors with regard to absence of an independent T dimension seem supported.

We turn to the evidence for Mach scores as an alternative definition of T. The correlations between individual Mach items and R and Mach scores are plotted in Figure 1; an examination of this Figure suggests that Machiavellianism more closely approximates a dimension orthogonal to R than does T. The average correlation of the 20 Mach items with R is only .11, in contrast to the r of .48 between T and R. Moreover, the theoretical relationship between Mach and tough-mindedness is supported by a significant correlation between Mach and T ($r = .44$). Finally, in support of the independence of Machiavellianism and liberalism-conservatism, total Mach score does not significantly relate to total R score ($r = -.09$, $p > .10$).

Figure 1 itself may be compared with the diagram presented by Eysenck (5, p. 130). Eysenck's figure has no items clustering around the vertical dimension, indicating graphically the lack of any test items uniquely defining T.[1] Most of the Mach items, on the other hand, cluster around the vertical dimension defined by total Mach score. Thus, Machiavellianism and Radicalism seem to be separable dimensions, and as we have mentioned, are uncorrelated. Therefore, Machiavellianism seems to represent Eysenck's tough-minded dimension empirically, as well as conceptually.

These findings suggest that Eysenck's two-factor theory of social attitudes may still be plausible in light of current knowledge. Adequate testing of the theory has been stalled for years because of the inadequacy of the measures of Eysenck's theoretical variables. Eysenck's original idea of the tough-minded dimension does seem to possess conceptual validity, but little has been done to link the conceptual definition with current political and social reality, via the use of unequivocal empirical measures. The present paper has presented evidence for Machiavellianism as a more promising measure of tough-mindedness than Eysenck's T scale.

[1] When data from the present study are plotted against axes representing R and T, as in Eysenck's figure, the location of test item points are close to those plotted by Eysenck. Thus, the results reported here based upon American *S*s in 1973 seem consistent with those for British *S*s in the 1940's.

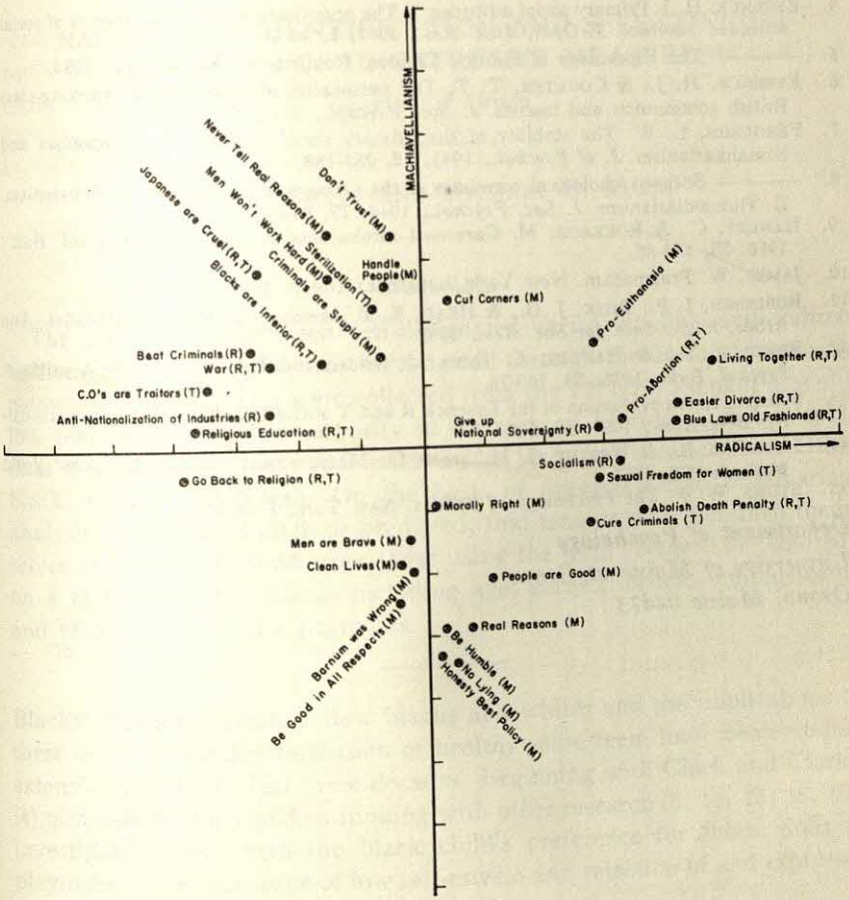

FIGURE 1
DIAGRAM ILLUSTRATING CORRELATIONS OF MACH IV (M), RADICALISM (R), AND TOUGH-MINDEDNESS (T) ITEMS WITH MACHIAVELLIANISM AND RADICALISM TOTAL SCORES

Three Mach IV items are omitted for clarity.

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RACIAL SELF-IDENTIFICATION AND SELF-CONCEPT BY MEANS OF UNOBTRUSIVE MEASURES*

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SUMMARY

The relationship between self-designated racial labeling and indirect assessment of self-esteem was investigated through the use of unobtrusive measures. Archival data were collected from the 1971-1973 tenant files of a low rent public housing authority in the state of Florida, U.S.A. Usable data were obtained from 145 tenants who identified themselves as either black, colored, or Negro. On the basis of univariate and multivariate analysis, it was concluded, as predicted, that tenants who identified themselves as "black" differed from those using the term "Negro" or "colored" on a number of dimensions including age, earned income, employment, and reliance on welfare payments.

Blacks' attitudes toward fellow blacks and whites and the implications of these attitudes for the formation of healthy self-esteem have been studied extensively over the last three decades. Beginning with Clark and Clark's (4) now classic study and continuing with other research (6, 11, 13, 18, 20), investigators have held the black child's preference for white dolls or playmates to be indicative of low self-esteem and rejection of and expressed hostility toward his own group.

Blacks have been held to be stigmatized by language as well. The differential in conative or affective meaning of color names has been demonstrated by Williams and his collaborators (14, 22, 23, 24). The color name white was rated as good, while the color name black was rated as bad by both Negro and Caucasian students in a nonracial context.

There is reason to question the validity of negative black self-identity in light of contemporary images of blackness: e.g., "Black is beautiful." For

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example, a recent study by Hraba and Grant (7), using the doll preference test in an integrated setting in Lincoln, Nebraska, discovered that black children preferred the black doll regardless of the race of the *E*. Williams, Tucker, and Dunham (25) found that there were significant changes from 1963 to 1969 in the connotation of the color term "black" among Negro *S*s. "Black" was viewed as more positive and more active, with these changes being most pronounced to those *S*s most strongly committed to black separatism.

Blackness has come to be associated with pride, independence, and assertiveness; in short, acceptance of black consciousness is identified with a more positive self-image. One manifestation of this new self-determination is rejection of the label colored or Negro and replacing it with Afro-American or black. Carmichael and Hamilton have commented on the significance of ths change:

> There is growing resentment of the word "Negro," for example, because this term is the invention of our oppressor; it is *his* image of us that he describes. Many blacks are now calling themselves African-Americans, Afro-Americans, or black people because that is in *our* image of ourselves. . . . The black that *it* has created (3, p. 37).

Few studies have focused on the racial labeling preference among Negro Americans, although Hyman has recognized its significance:

> Surveys that have experimented with an open-ended question exploring how the respondent classifies himself seem nonexistent, and this certainly should be incorporated at the beginning of an interview . . . Such a procedure would serve to measure whether the self-perception is "nonwhite" but also to indicate more subtle aspects of group identity (8, p. 366).

The issue of self-labeling was tangentially studied in Caplan and Paige's (2) examination of people who engaged in the Newark riots. About half of all rioters but only one-third of nonrioters identified themselves as black rather than Negro or colored, suggesting that linguistic cues, such as racial identification, have psychological meaning. The issue of differential aggressiveness of self-classified Negroes, blacks, and Afro-Americans has been studied in an experimental setting also. Weigand (21) found that "blacks" were significantly more aggressive than "Negroes"; they directed higher levels of shock to both white and black confederates. However, contrary to expectations, "Afro-Americans' " level of aggression was the lowest of the three groups.

In a subsequent study employing the same data base used in studying the Newark riots, Paige (17) reported point biserial correlations between racial

labeling preference (black *vs.* colored or Negro) and several personality and attitudinal variables. Those respondents who chose to be identified as blacks scored lower on authoritarianism and anomie scales than those preferring the nonblack designation, indicating that those people identifying themselves as blacks may have a more open and stable personality. There was no significant relationship between racial identification and self-hatred. However, the latter variable was measured by only one item: "Negroes are always shouting about their rights but have nothing to offer."

Data collected in 1967 from black high school students and their parents in Montgomery, Alabama, found that "Negro" was the preferred racial term. There were no significant differences in self-labeling preferences between parents and children. However, seniors were reported to be less likely to mind being called blacks or Afro-Americans than their mothers. Tests of statistical significance were not reported (10).

While the aforementioned studies have provided some understanding of the psychological significance of racial self-labeling, the issue has not been explored fully. All reported studies have asked *S*s to indicate which of several listed racial designations is most preferred. Given the demand characteristics inherent in surveys and laboratory experiments (19), asking respondents to classify themselves in response to an open-ended question and/or collection of data in nonreactive settings would be useful. Since use of racial terms may be extremely sensitive to perceived interviewer expectations, particularly among grade school and college students, extreme care in data collection is advisable.

The present study uses unobtrusive measures developed from archival material to explore the relationship between self-designated racial labeling and sex, age, income, job classification, and damage to dwelling. On the basis of prior research, a number of hypotheses have been formulated. Since previous studies have found males more likely to express racial militancy than females (9, 12, 16), males may be more prone than females to designate themselves as black. Because of the increased militancy of young blacks, the terms "Negro" or "colored" to identify racial classification should be more prevalent among older respondents. Since the use of "black" is hypothesized to be identified with greater self-esteem, those identifying themselves as blacks are more likely to have higher incomes, less likely to engage in personal service occupations such as farm laborer or domestic, and less likely to damage their dwelling than those identifying themselves as Negro or colored.

B. Method

The data were collected from the 1971-1973 tenant files of a federally funded, low rent public housing authority in a county in northern Florida. Public housing projects were in four separate locations in the county. Each tenant's file contained a preliminary application form, an interview form, a telephone contact sheet, a lease, and copies of all late rent notices.

In order to obtain housing, an applicant would first personally see the housing office where he or she was given a preliminary application form and an interview appointment time. At the interview the preliminary application was returned, and a member of the housing staff would complete an interview form. When the applicant received housing, an executed copy of his lease was added to the file. Verification of employment, income, welfare, and/or social security was included on the tenant's application form.

The variables examined in this investigation were drawn from each tenant's file. Racial classification was determined from the preliminary application which was always completed by the applicant. Applicants merely wrote their racial identification in the space marked "race." "Earned income," which was verified and computed by a member of the housing authority, included the yearly earned income of the person who filled out the preliminary application. Welfare, social security, food stamp, and pension income were not included in the computation of "earned income."

Job classification information was collected from the interview and employment/assistance verification forms. Applicants were classified as to whether or not they engaged in farm labor or domestic work and as to whether or not they were receiving welfare payments. Two persons working independently from instructors supplied by the investigators agreed on classification of all 145 applicants.

Additional data on sex and age of applicant were drawn from the interview form also. Whether or not the tenant caused any damage to the premises was determined by the charges assessed to each tenant from work orders in the file. Damage included such things as backed up toilets (when caused by the tenant), broken windows, damaged walls and floors, and damage to appliances.

In total, usable data were obtained from the files of 145 tenants who identified themselves as either black, colored, or Negro. Caucasians, who constituted approximately 20% of the public housing tenants, were eliminated from the study. Five files were eliminated because of failures to

complete the racial classification section or because a "c" was written which could have meant either colored or Caucasian.

C. Results

Since no applicants labeled themselves as Afro-Americans and only 22 respondents identified their race as colored, racial classification was dichotomized into black and nonblack to facilitate data analysis. Forty-one and 104 *S*s were categorized as blacks and nonblacks, respectively. Although slightly more males than females identified themselves as black (32% *vs.* 25%), racial classification was statistically independent of sex ($\chi^2 = .46$, $p < .50$); therefore, subsequent analysis was undertaken for racial identification groups irrespective of sex.

The data were analyzed through three separate statistical procedures. First, a multivariate test using Wilks' lambda statistic (15, pp. 117-128) was employed to determine if there were overall differences between blacks and nonblacks across all five variables: age, earned income, welfare, employment and damage to dwelling. Second, univariate tests, using χ^2 and t statistics, were used to explore relationships between racial classification and each variable separately. Finally, stepwise multiple discriminant analysis (1) was applied to discern which variables contributed the most incremental discriminatory power. Through the stepwise procedure, the correlation among variables could be taken into account.

Comparison of the mean vectors for blacks and nonblacks was undertaken through the BMIIV (formerly BMDX63), the multivariate general linear hypothesis program of the Biomedical Computer Programs package (5). Overall, there were significant differences between blacks and nonblacks across the five variables under investigation ($F = 2.52$, $df = 5/138$, $p < .05$).

Examination of each variable individually through univariate analysis provided some understanding of the variables contributing to the overall difference between mean vectors. Those identifying themselves as blacks were slightly younger (29.36 years *vs.* 32.98 years) than nonblacks ($t = 2.01$, $df = 143$, $p < .05$) and earned nearly $1000 more annually ($4461 *vs.* $3480) than nonblacks ($t = 2.58$, $df = 143$, $p < .01$). In addition, blacks were less likely to engage in farm labor or domestic employment ($\chi^2 = 3.17$, $df = 1$, $p < .05$) and less likely to receive welfare payments ($\chi^2 = 4.50$, $df = 1$, $p < .05$) than nonblacks. About 15% of blacks performed farm labor or domestic employment and 24% of blacks received state welfare, whereas the percentages were 30% and 45%, respectively, for

nonblacks. Although blacks tended to have fewer damage charges than nonblacks (59% *vs.* 70%), differences failed to reach statistical significance ($\chi^2 = .84$, $df = 1$, $p < .40$).

The final analytical procedure employed was stepwise multiple discriminant analysis. through BMDo7M (5). The objective of mulitple discriminant analysis is to produce a linear classification function which will optimally classify objects into one of two mutually exclusive and exhaustive categories. The stepwise option enables the investigator to enter independent variables into the function one at a time so that each variable added supplies a significant increment of classificatory power. Since independent variables are often highly correlated, the stepwise procedure is useful in specifying a parsimonious discriminant function.

The results of the stepwise multiple discriminant analysis show that only two variables, age and earned income, enter the discriminant classification function. While both employment and welfare variables were significantly related to racial classification in univariate analysis, neither variable provides any incremental benefit to classifying applicants. Point biserial correlations between income and both acceptance of welfare payments) ($r_{pb} = -.54$) and employment in domestic/farm labor occupations ($r_{pb} = -.22$) were significant, thereby reducing the possibility of either the welfare or damage variable producing any improvement in prediction. Also, tenants who damaged their dwelling were more likely to have lower incomes, to receive welfare payments, and to engage in domestic or farm employment than tenants who maintained their premises.

D. Discussion

The archival data support the proposition that unobtrusive measures of racial classification have psychological meaning. As predicted, older blacks tended to use the terms "Negro" and "colored" to describe their race more than younger tenants. It is not clear whether this differential in terminology is associated with a more positive self-image among younger blacks or is merely indicative of the flexibility of younger people in adopting new language usage and/or greater identification of the "black power" movement among youth.

The highly correlated cluster of income-related variables, including earned income, welfare acceptance, and employment, was associated with racial identification also. These variables are indirectly related to self-concept. Individuals earning decent wages under dignified employment conditions are likely to have a more positive conception of self than those

involved in less acceptable circumstances. Although the central hypothesis has been supported, clearly the correspondence between self-labeling and positive black indentity only can be inferred from these data.

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THE IMPACT OF TEACHER AND STUDENT EXPECTANCY IN A MICROTEACHING SITUATION*[1]

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SUMMARY

In order to examine the influence of teacher and student expectancies on teaching and learning behavior, 156 male and female undergraduates were studied in a microteaching session in which high and low teacher and student expectancy instructions were experimentally varied. All expectancy instructions were ostensibly based on student performance on a language aptitude examination. Results indicated that teachers' perceptions of student performance, but not the student performance itself, differed according to the expectation assigned ($p = .07$). When the same expectancy was assigned to both teacher and student, a larger number of words were taught than when the teacher and student were assigned dissimilar expectancies ($p < .01$).

A. INTRODUCTION

Since Rosenthal and Jacobson (3) reported that student performance levels are influenced by experimentally induced teacher expectations, the "Pygmalion phenomenon" has occupied an important position in the literature of behavioral science. More recent research has attempted to account for the Pygmalion effect by focusing upon the way in which teacher expectations alter the nature of interaction between student and teacher (1, 2, 4).

Following a related line of inquiry, Tuckman and Bierman (6) have investigated the effect of student expectations—expectancy instructions given directly to the students themselves rather than to their teachers—on

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the level of student performance. Their results indicated that students reassigned to higher ability tracks tended to perform better on standardized achievement tests than students who remained in a lower track.

The purpose of the present study was twofold: first, simultaneously to manipulate *both* teacher and student expectancies in order to examine for the possible presence of interaction between them, and, second, to explore further the nature of student-teacher interaction under the varying expectancy conditions of a microteaching situation.

B. Method

1. *Subjects*

Participants in the study were 156 undergraduates from an introductory class in sociology. Of this group, 52 females were randomly assigned to the role of teacher and 52 females were randomly assigned to the role of student. The remainder of the group, 52 males and females, were assigned to the role of independent rater. These teachers, students, and raters were initially informed only that they were participating in a study of a new form of a language aptitude test.

2. *Independent Variables*

In a microteaching session, 52 triads were formed by randomly assigning teachers, students, and raters to one of four expectancy conditions of a 2 × 2 factorial design employing two levels of Student Expectancy regarding the student's performance (High Potential *versus* Low Potential) and two levels of Teacher Expectancy regarding the student's performance (High Potential *versus* Low Potential). The experimental procedure took place during a single class period and involved the group administration of booklets containing the expectancy instructions, directions for the participant's role, and a list of 15 words to be taught by the teacher and learned by the student.

In their booklets, all students received a grade of 51 ostensibly based upon their performance on a Language Aptitude Examination taken one week prior to the experimental session. In addition, all teachers and students received a key to interpret the student's score. For the High Potential student and teacher expectancy conditions, the key indicated that, based on her score, the student was found to have "excellent" language learning abilities; whereas, for the Low Potential student and teacher expectancy

conditions, the key indicated that the student was found to be "below college standards" with respect to language learning abilities.

3. *Dependent Measures*

To obtain subjective measures of teaching and learning behavior, each teacher was asked to estimate the number of words she attempted to teach to her student, as well as the number of words the student learned. The independent rater provided an objective assessment of teaching behavior by reporting the number of words in the list actually covered by the teacher in his or her triad. Finally, an objective measure of learning was obtained by means of the student's score on a written test of her ability to recall the words she was taught during the experimental session.

4. *Procedure*

One week prior to the microteaching session, the participants in the study took "The Language Aptitude Examination," a 10 minute timed test of their "ability to learn a foreign language." This test consisted of matching 15 nonsense words with their English equivalents. During this session, the participants were first given an opportunity to familiarize themselves with the meanings of the 15 nonsense words and then were asked to select the correct English equivalents from a list of five alternatives. "Scores" on the Language Aptitude Test were used to create the expectancy conditions.

For the experimental session, all participants were seated by triad in a large lecture hall, where an "educational researcher" explained the purpose of the microteaching session as an attempt to examine certain aspects of a new version of the "reliable and valid" Language Aptitude Examination. Participants received a booklet appropriate to their role, whether teacher, student, or rater. Only teachers and students were assigned expectancy instructions.

After reading the instructions, each teacher was given 10 minutes to teach her student verbally the English meanings of words given to her in a "new language," while each rater observed. Following the 10 minute teaching session, each rater recorded the number of words that the teacher attempted to teach to the student. As a check on the effectiveness of the manipulation, the student was asked to indicate on a seven-point rating scale her degree of satisfaction with the Language Aptitude Examination grade. All teachers completed subjective evaluation forms and the students took written tests of their recall of words taught to them.

After the teaching session, all participants were informed as to the actual purpose of the study, including the nature of the experimental manipulations.

C. Results

To examine the influence of expectancy instructions on teaching behavior, a 2 × 2 analysis of variance (Teacher Expectancies × Student Expectancies) was conducted on the raters' assessment of the number of words taught. This analysis failed to uncover a significant main effect for either teacher or student expectancy instructions, but yielded a significant interaction ($F = 10.36$, $df = 1/49$, $p < .01$).

Duncan's procedure for multiple comparison of the interaction means revealed that an assignment of the same expectancy instructions to both student and teacher—whether High Potential to both ($\overline{X} = 38.42$) or Low Potential to both ($\overline{X} = 39.54$)—produced a significantly larger number of words taught than did either dissimilar combination—Low Potential to teacher but High Potential to student ($\overline{X} = 29.83$) or High Potential to teacher but Low Potential to student ($\overline{X} = 28.00$).

A similar analysis of variance of the teacher's estimate of the number of words taught also failed to uncover significant main effects for teacher and student expectancies, although the interaction effect achieved a borderline level of significance ($F = 2.98$, $df = 1/49$, $p < .10$).

In order to determine the effect of expectancies on learning behavior, a 2 × 2 analysis of variance (Teacher Expectancies × Student Expectancies) was conducted on the number of words actually recalled by the students. This analysis failed to yield significant main effects or a significant interaction. By contrast, a 2 × 2 analysis of variance of the teacher's estimate of the number of words learned by the student produced a significant main effect for Teacher Expectancies ($F = 3.62$, $df = 1/49$, $p = .07$). More specifically, the High Potential teacher expectancy yielded significantly larger estimates of learning ($\overline{X} = 17.12$) than did the Low Potential teacher expectancy ($\overline{X} = 13.30$). No other significant effects were uncovered.

Analysis of the check on the manipulation of expectancy instructions indicated its effectiveness: Students in the High Potential group were significantly more satisfied with their test grades ($\overline{X} = 5.96$) than were students in the Low Potential group ($\overline{X} = 2.26$—$F = 60.01$, $df = 1/49$, $p < .0001$).

D. Discussion

One purpose of this study was to examine the impact of teacher and student expectancy instructions on student behavior in a microteaching situation. At the level of subjective assessments of students by their teachers, present findings showed that teachers tended to perceive the occurrence of more learning when they believed that their students possessed high potential for the learning task they were asked to perform. In contrast to Rosenthal and Jacobson, however, the present study did not find that teacher or student expectancies actually influenced performances on the part of students. Specifically, Language test results failed to differ significantly by level of expectancy, whether given to teacher or student.

The brevity of the experimental session employed in the present study may account in part for its results. It is indeed conceivable that over a much longer period of time (e.g., several weeks or months) teachers' perceptual differences manifest themselves behaviorally as performance differences among students. In the long run, poor teacher evaluations may well impede student progress and excellent teacher evaluations enhance student progress. What is more, unlike previous research on young children, the present investigation utilized college students who were accustomed to taking examinations and socialized to perform as well as possible on them. Conceivably, such prolonged association with examination situations and grading systems may be a major factor in the development of a stable, less malleable self-concept regarding academic abilities and limitations—a self-concept that is not easily influenced by any given ten minute teaching-learning experience.

Also contrary to previous research, this study failed to uncover significant main effects for teacher or student expectancies on teaching behavior, whether reported by teachers or raters. Unexpectedly, however, there was a significant interaction between teacher- and student-expectancy, so that an assignment of the same expectancy to both student and teacher yielded a larger number of words taught than did either dissimilar combination.

To speculate regarding differences observed between consistent and inconsistent expectancy groups, it is necessary to examine the situation in which the triads were operating. In those groups where the expectations held by teachers and students were consistent with one another (both High Potential or both Low Potential), the shared expectation may have served to "define the situation" (5). That is to say, a common assumption existed

between the teachers and students which allowed them to pursue the instrumental goal: i.e., to proceed with the task of teaching and learning. In the group where the shared expectancy was high, the teachers may have tried to teach many words to their students, believing that their students would easily learn the amount taught. The students in the consistent High Potential group, for their part, may have moved at the pace initiated by their teachers, also believing that they would effectively learn the list of words. In the group where the shared expectation was low, the teachers may have moved rapidly through the list, believing that their students would not be able to master the task, regardless of how effectively the words were presented to them. The students in this group, resigning themselves to a low level of achievement, made little effort to slacken the pace of teaching. Inconsistent groups, by contrast, were given no common framework within which to operate. As a result, they sought to minimize the conflict inherent in their situation, before pursuing their instrumental goal.

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BEHAVIORAL EFFECTS OF VIEWING PORNOGRAPHY*[1]

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SUMMARY

The behavioral effects of exposure to pornography were investigated in this study. Fifty-six male college students looked at slides showing explicit sexual activity. Most of them found the experience moderately sexually arousing, enjoyable, and generally pleasant, but some reported being disgusted, ashamed, and shocked. Self-reports of sexual behavior revealed no increase from the week preceding the viewing of the slides to the week following the exposure. There was, however, a large increase in total sexual outlets the same day the slides were viewed, which disappeared by the next day. Most of the temporary increase was attributed to masturbation. Evidence of delayed arousal reactions and attempts to control arousal while viewing the slides was taken as supporting the argument that highly pornographic stimuli evoke defensive reactions in *S*s.

A. INTRODUCTION

The vast majority of adult men have been exposed to pornography[2] of some sort at some point in their lives [see the Report of the U.S. Commission on Obscenity and Pornography (22)]. In a recent national survey in the United States, 85% of adult men and 75% of those below the age of 21 reported seeing or reading explicit sexual material at some time (1). Serious concerns have been expressed concerning the assumed effects of such exposure. These include increases in aggressive, unlawful, and nonconsensual acts; sexual practices harmful to the self; depersonalization of sex; various harmful activities not directly related to sex, such as delinquency

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[1] Reprint requests should be addressed to the first author at the address shown at the end of this article.
[2] There is no generally accepted definition of "pornography." In this paper we use the term to refer to sexually explicit materials. In a previous study (23) we found that *S*s view as pornographic materials that are sexually arousing and unpleasant. While pornography is a term that has no legal status, we have avoided the legal term—obscenity—because there is even more definitional confusion concerning it.

and crime; and changes in attitudes about sex (22). Few beneficial consequences are seen.

Investigating the effects of pornography is a matter of some interest to behavioral scientists. While there seems to be some conviction on the part of the general public and legislators that the above negative effects do occur, some recent studies suggest that such views are unsubstantiated and largely erroneous.

For example, male college students were shown films of explicit heterosexual activity by Schmidt, Sigusch, and Meyberg (20). The films produced substantial sexual arousal in the *S*s. During the following 24 hours significant increases in sexual desire and fantasies were reported. There was an increase in masturbation during this period, but no other changes in sexual behavior were found. Using the same films, Davis and Baucht (9) also found a significant increase in masturbation in the next 24 hours relative to the 24 hours preceding the film viewing. Very similar results were obtained in an unpublished preliminary study by the present authors. Mosher (17), on the other hand, found no behavioral changes whatsoever. In all these studies most of the *S*s were unmarried male college students. Thus it would appear that for single *S*s the only behavioral effect of viewing pornography is an increase in masturbation.

This appears not to be the case with married *S*s. Byrne and Lamberth (6) showed married couples slides of explicit sexual activity or had them read erotic passages. No changes in sexual behavior were reported. However, these reports were after the fact, and no baseline measures were obtained. Kutchinsky (13), using mainly married volunteer *S*s, found that seeing "high quality" pornography had no effect on the sexual behavior of three-quarters of his *S*s. Of those who reported some change, significantly more increased than decreased petting and coitus. Mann, Sidman, and Starr (16) found a significant increase in coitus among married couples shown pornographic films. The change was only temporary, and the effect disappeared very quickly. Taken together these studies suggest, then, that for most *S*s pornography has no lasting behavioral effects. Among those *S*s affected, pornography may produce a temporary increase in what is already the dominant sexual activity—masturbation for single males, coitus for married ones.

Each of the previous studies suffers from one or more of three serious problems: (*a*) only the very immediate effects (i.e., 24 hours following exposure) were investigated; (*b*) use of an inadequate baseline measure, and/or (*c*) the method used to obtain the data might have been "obtrusive"

and could well have affected the behavior investigated (2). The main purpose of the present study is to investigate behavioral effects of pornography over a longer period of time, with an adequate baseline measure and an unobtrusive measure of sexual behavior.

In addition, we are interested in exploring *S*s' affective reactions to sexual stimuli. Schmidt and Sigusch (19) found that *S*s, though sexually aroused, reported mostly negative reactions (boredom, anger, etc.) to the experience. Is there any relationship between *S*s' affective reactions to pornography and its behavioral effects? Further, Levitt and Brady (14) found no relationship between personality variables and *S*s' reactions to pornographic stimuli. Is this true of behavioral effects as well?

B. Method

The data reported below were collected as part of another study. Detailed information concerning the *S*s and the procedures employed are given in the report of that study (5). In brief, the *S*s were 56 male university students who had responded to an ad in the campus newspaper offering $6.00 to volunteers for an unspecified psychological experiment.

In small groups *S*s first completed several questionnaires involving demographic characteristics, sexual behavior, and attitudes toward various sexual practices. They also completed several personality scales which were expected to be related to reactions to sexual stimuli. These were the repression-sensitization scale (7); Rotter's (18) locus of control scale; the extraversion-introversion, neuroticism, and lie scales of the Eysenck Personality Inventory (10); and the need for social approval scale (8). The scales were assembled into a single booklet of 158 items. At the first session the *S*s were asked not to discuss the study with anyone while it was in progress or afterwards.

A few weeks later the *S*s were shown 15 color slides of an attractive couple engaged in a variety of heterosexual activities and in masturbation. The slides, single frames from the Schmidt and Sigusch (19) films, and the conditions under which they were shown are described in Brown *et al.* (5). The slides had previously been rated on how pornographic and sexually stimulating they were (2). Most of the slides were rated as somewhat pornographic and moderately arousing. They were seen by *S*s either alone or observed by some graduate students (the audience condition) for as long as each *S* wished. (These conditions are not relevant to the present paper. With one exception to be noted later, the conditions had no effect on any of the measures of present interest, and the data have been combined

below.) Viewing times were fairly short: in the audience condition the mean was 10.4 (SD = 6.3) seconds per slide, and in the alone condition, 21.2 (SD = 13.3) seconds per slide.

Immediately after looking at the slides, each S completed a questionnaire concerning his reactions to the slides. He also indicated his sexual activity day-by-day during the week immediately preceding the slide viewing. We believe this method of obtaining information on sexual behavior to be unobtrusive; the self-reports were obtained after the behavior had taken place, and the Ss were not aware in advance that they would be asked about it. The activities of major interest were masturbation, petting, coitus, and sexual dreams. These data represent the baseline measure of sexual activity. After completing the questionnaire, the S was interviewed by the E to clarify any responses that were unclear. He was told that the study was finished and to return in one week for payment.

When the S returned a week later he completed a short questionnaire. In a manner similar to the baseline measure, it asked about his sexual behavior on the day he saw the slides and on the next six days. He was also asked about his sexual arousal after the session, whether he had desired any sexual outlet, and whether he was stimulated to try any sexual activities he had not tried before.

C. Results

1. *Emotional Reactions*

Most Ss described the slide viewing situation in positive terms. It was described as enjoyable by 77% of the Ss; 67% said they wanted to see more; 52% reported being sexually aroused; and 38% said they were envious. However, a number of Ss gave very negative reports: 21% said they were disgusted; 9% were shocked; 6% reported feeling guilty; 6% said they wanted to leave; 5% reported shame, and 2% anger.

A majority (60%) of the Ss reported "using their imagination to add to the slides," and 21% indicated they had tried to control their sexual arousal. It appears that while most Ss found the experience a pleasant one, a sizeable minority found it rather unpleasant. For most Ss, then, the slides did appear to be sexually potent.

Most Ss (60%) reported no arousal after the session. Most of those who were aroused remained so for only a short while (27% for only an hour or so), but a few reported being aroused for the rest of the day (4%) or for several days (10%). Many (67%) reported thinking about the slides later,

but only a minority (23%) reported delayed reactions (i.e., the onset of spontaneous sexual arousal accompanied by thinking about the slides). When asked whether the slides showed any activities that were new to them and which they would like to try, 29% of the subjects replied "yes." Almost all the new activities mentioned were heterosexual anal intercourse and oral-genital activity.

2. *Behavioral Effects*

An attempt was made to determine whether the self-reports of sexual behavior were reliable. Some weeks before seeing the slides the *S*s were asked to indicate the number of times per month they engaged in masturbation, petting, and coitus. These figures were then correlated with those given for the weeks before and after viewing the slides. The correlations for the weeks before and after are, respectively, as follows: masturbation .81, .65; petting .93; .94; coitus .70, .89. The moderate to high correlations suggest reasonable reliability of the self-reports and also indicate that the weeks in question were typical weeks as far as sexual behavior was concerned.

Table 1 gives the number of *S*s reporting masturbation, petting, coitus, and sex dreams at least once during the week before and the week after seeing the slides. Also given are the percentages of *S*s reporting a change in frequency of each behavior from the week before to the week after.

About half of the *S*s reported masturbating, petting, and sex dreams and about one-quarter reported engaging in coitus at least once during the week before viewing. The figures are very similar the week after viewing. Most *S*s did not change from the week before to the week after (57%-68% reported no change). Of those who did change, about as many increased as

TABLE 1
SEXUAL BEHAVIOR BEFORE AND AFTER VIEWING SLIDES

Activity	Percent *S*s reporting some activity during week		Percent *S*s changing[a]	
	Before ($N = 56$)	After ($N = 49$)	Increased frequency	Decreased frequency
Masturbation	53.1	53.1	24.5	13.4
Petting	53.1	51.0	18.4	24.5
Coitus	29.5	24.5	14.3	18.4
Sex dreams	55.1	49.0	10.3	30.6*

* $p<.05$ (sign test).
[a] For each activity most *S*s (>50%) reported no change in frequency.

decreased for masturbation, petting, and coitus. In the case of sex dreams, significantly more decreased than increased.

These effects were similar in the two experimental conditions, but in the "alone" condition more *S*s reported changes (regardless of direction) than in the "audience" condition. In the case of masturbation the difference was significant ($\chi^2 = 4.94$, $df = 1$, $p < .05$).

Figure 1 shows the number of *S*s reporting at least one ejaculation from any sexual activity on each day. There was little variability during the week preceding the viewing of the slides ($\chi^2 = 3.52$, $df = 6$, $p > .70$)—an average of 19.4% of the *S*s reported ejaculating each day. There was a dramatic increase on the day the slides were seen—49% of the *S*s ejaculating. On the next day and for the remainder of the week after viewing there was a return to the baseline level, to an average of 19.7% ejaculating each day. There was no difference between days +1 to +6 ($\chi^2 = 2.55$, $df = 5$, $p > .70$). The number ejaculating on the day the slides were viewed was

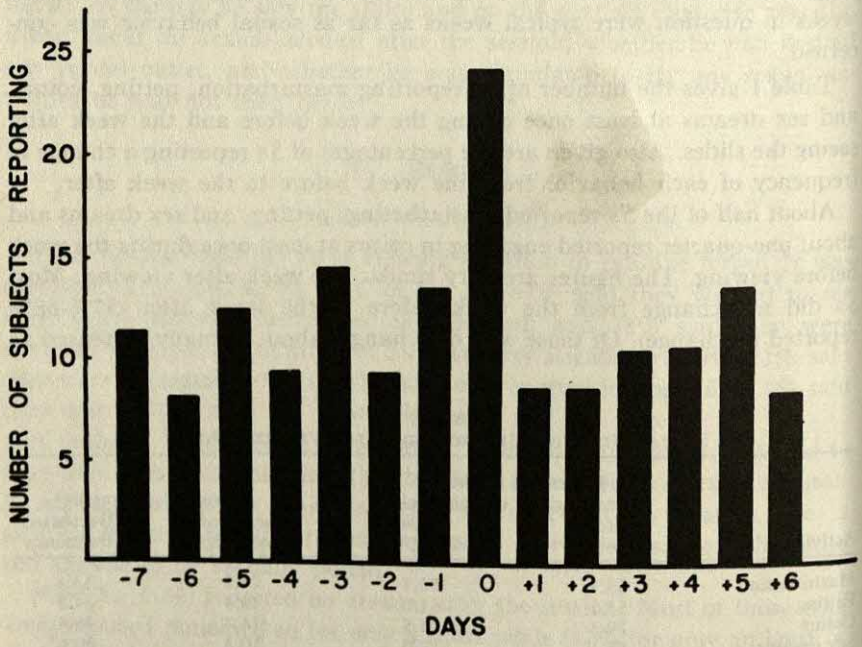

FIGURE 1
NUMBER OF *S*s REPORTING AT LEAST ONE EJACULATION DURING SEVEN DAYS. BEFORE AND AFTER VIEWING SLIDES (DAY 0 = DAY SLIDES VIEWED)

TABLE 2
SPECIFIC SEXUAL BEHAVIORS DURING 14-DAY PERIOD
(Day 0 = Day slides viewed)

Days	Percent of *Ss* Reporting			
	Masturbation	Petting	Coitus	Sex dreams
Mean: days −7 to −1	12.5	18.9	6.4	20.7
Day −1	12.5	16.1	7.1	14.3
Day 0	24.5	16.3	6.1	10.3
Mean: days +1 to +6	14.6	16.3	7.5	17.0

significantly higher than both the average of the seven days preceding ($\chi^2 = 10.22$, $df = 1$, $p < .01$) and the six days following ($\chi^2 = 9.25$, $df = 1$, $p < .01$).

There was, then, a large but temporary increase in total sexual outlets immediately after the viewing of the slides, which disappeared by the next day.

Table 2 shows the daily breakdown of specific sexual behavior. Though none of the differences is statistically significant, it is clear that only in the case of masturbation was there an increase on the day the slides were viewed relative to either the previous day or the daily average of the preceding week. By the next day the frequency of masturbation was back to its previewing baseline. Masturbation seems to account for a good deal of the effect in Figure 1.

Table 3 gives the correlations between the frequencies of specific sexual behaviors before viewing the slides, the frequency after viewing, and the amount of change. The first column (all correlations are significant at $p < .01$ level) shows that the relative frequencies are fairly stable. The *Ss* engaging most in a given activity tend to engage in it most afterwards. The implications of the data in the second column are very tentative, since change scores tend to be negatively correlated with premeasures because of regression to the mean, etc. There is a suggestion, though, that the greatest

TABLE 3
CORRELATIONS BETWEEN FREQUENCY OF SEXUAL ACTIVITY BEFORE AND AFTER VIEWING SLIDES AND CHANGES IN ACTIVITY

Activity	Week before *vs.* week after viewing slides	
	Frequency	Activity change
Masturbation	.65	−.60
Petting	.94	−.22
Coitus	.86	−.04
Sex dreams	.61	−.68
Total ejaculations	.83	−.22

change in masturbation and sex dreams took place among those *S*s showing least of these behaviors initially. The zero-order correlations for the other behaviors and the high reliabilities given earlier suggest that these relationships are not simply artifactual.

3. *Correlates of Behavior Change*

An attempt was made to determine whether any of the personality or demographic variables or any of the *S*s' reactions to the slides were related to changes in sexual behavior. In general, there were few correlations of interest. Only those that are statistically significant ($p < .05$) are reported below. Since these correlations were extracted from a large number of correlations, the significance level is questionable, and cross-validation is required before any clear interpretation can be made. Perhaps the clearest finding here is the general lack of relations between personality and demographic variables and the effects of pornography.

Among the personality traits, only need for social approval was related to any of the behavior changes. *S*s high in need for social approval showed least change in petting ($r = -.34$) and coitus ($r = -.30$). Among the demographic variables age was positively related to change in sex dreams ($r = -.26$), and married *S*s showed greater change in coitus than single ones ($r = .27$). *S*s who reported themselves most satisfied with their lives changed least ($r = -.26$) in frequency of coitus.

The nature and extent of previous exposure to pornography was not related to the effects of the slides. *S*s who reported an erection while viewing the slides changed most in total ejaculations ($r = .32$). Those reporting being envious showed greatest change in masturbation ($r = .37$) and total ejaculations ($r = .30$).

Among the *S*s' ratings of the slides, ratings of pleasantness were positively correlated with change in petting ($r = .31$). Unusual ratings were positively correlated with change in petting ($r = .36$) and coitus ($r = .39$). Pornographic ratings were also correlated with change in petting ($r = .29$) and coitus ($r = .28$).

D. Discussion

*S*s exposed to sexually explicit slides, even for a short while, showed fairly strong emotional reactions to the experience. Most of them found the experience a positive one and reported being sexually aroused, pleased, and wanting to see more. But some *S*s reported disgust, shock, shame, guilt, and anger—this despite the fact that most of them have had previous

experience with similar or other explicit sexual stimuli. The affective reactions of *S*s in other studies have also been mixed (6, 17), but have tended to be more negative (13). It appears that in those cases the *S*s were exposed to sexual stimuli for a longer period of time; it is reasonable to expect that with longer exposure affective reactions will become more negative. Certainly reports of boredom will be encountered—something which we did not find. There is also evidence of a "satiation effect": that is, diminution in arousal with repeated or continued exposure to such stimuli (11, 12).

Many *S*s reported using their imaginations to add to the slides and, presumably, to increase their own sexual arousal. This finding provides some support for Tannenbaum's (21) notion that imagination of sexual activities could be considerably more vivid than those activities explicitly depicted. It also suggests that how sexually arousing explicit stimuli are perceived will depend not only on what they portray, but also on the amount and kind of imaginative processes they trigger. This no doubt accounts for the finding that suggestive slides tend to be more sexually arousing than more explicit stimuli (2, 3, 4). Perhaps the more explicit stimuli do not engage imaginative processes as much.

About one-quarter of the *S*s reported no immediate postsession arousal but later spontaneously thinking about the slides and becoming sexually aroused. Elsewhere it has been argued (5) that highly explicit and potentially arousing stimuli might be threatening and might produce defensive reactions on the part of the *S*s. This would be consistent with the report of 23% of the *S*s that they tried to control their sexual arousal. Later, under less threatening conditions, there might indeed be a spontaneous increase of sexual arousal. In an investigation of this argument Love, Schmidt, Sloan, and Baker (15) found that *S*s scoring high in sex guilt on the Mosher scale spent less time looking at explicit slides than guilty *S*s. Subjects rated moderate in sex guilt showed the expected curvilinear relationship between looking time and rated obscenity of the slides.

The absence of any overall increase in any sexual activity from the week before viewing to the week following is very similar to data reported from Denmark, Germany, and the United States (22, Tables 16, 17). The significant decrease in sex dreams may be due to the fact that the week following exposure to the slides was fairly close to final exams, and *S*s were preoccupied with other matters.

The temporary increase in total sexual outlets on the day the slides were seen, mainly attributable to an increase in masturbation, disappeared by the next day.

On the whole, the above data indicate few behavioral consequences of a single exposure to pornography. This, in fact, is the conclusion of the U.S. Commission on Obscenity and Pornography (22). However, further analysis suggests that this conclusion should be qualified. While there was considerable stability in sexual behavior from the week before to the week after viewing the slides, a number of *S*s did change. There is a suggestion from some of the data that those who changed most had engaged least in the behavior to start with. This possibility—not reported in previous studies—is worth further investigation.

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THE EFFECT OF BEHAVIOR RELEVANT INFORMATION ON ATTITUDE-BEHAVIOR CONSISTENCY*

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SUMMARY

This study investigated the effect of behavior relevant information on the appropriateness of the behavioral criterion employed in attitude-behavior research. The attitudes toward dental health of 32 randomly selected male college students were assessed. These attitudes were compared with the quality of dental care behavior exhibited before and after participation in a group instruction session designed to provide information relevant to the realization of high quality dental care behavior. Although attitudes toward dental health were not significantly correlated with the quality of dental care behavior prior to the instructional session, strong attitude-behavior correlations ($p < .01$) emerged with respect to the postinstruction data. The implications of these findings for research on attitude-behavior consistency are discussed.

A. INTRODUCTION

Most authors disturbed by evidence of attitude-behavior inconsistency (e.g., 8) have focused their criticisms on current conceptualizations of attitudes and associated attitude measurement techniques. While such a focus has been useful in inhibiting cavalier inferences about the meaning of attitude data, it has had the unfortunate consequence of allowing the adequacy of behavioral criteria to escape equally careful scrutiny. When inconsistency occurs, the tendency has been to question the wisdom of conceptualizing attitudes as underlying dispositions mediating a variety of behaviors, rather than to question the appropriateness of the specific behavioral criterion employed. Yet, some behavior may be particularly vulnerable to the influence of other personal characteristics (dispositions to-

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ward other objects represented in the situation, motivational states, expressive style, level of knowledge or experience with the behavior in question, etc.) and situational characteristics (demand characteristics, expectations of others in the situation regarding appropriate behavior, the probable consequences of various acts, etc.) A low attitude-behavior correlation derived from a study using such a behavioral measure, then, would demonstrate only the problems of selecting an appropriate behavioral criterion and not the conceptual problems in viewing attitudes as underlying dispositions to action. The present investigation of attitude-behavior consistency, conducted in the context of a dental health education project, illustrates how a superficially plausible behavioral criterion can yield misleading inferences.

One established index of the quality of dental hygiene exercised by an individual is the amount of bacterial plaque on selected surfaces of the teeth (3, 4, 5). It would be tempting, therefore, to anticipate that persons holding positive attitudes about the importance of dental hygiene should have relatively low plaque accumulations as measured by the Patient Hygiene Performance (PHP) index developed and refined by these authors. However, preventing plaque accumulations and removing plaque once it has accumulated require knowledge of particular techniques of dental care especially the proper use of dental floss. It is conceivable that a pro-dental-health individual might brush his teeth vigorously but ineffectively if he is ignorant of these specific techniques. Consequently, it may be more reasonable to hypothesize that favorable attitudes toward dental health will be associated with low plaque accumulation scores *only* when joined by instruction in the appropriate dental care procedures. In the absence of such behavior relevant information, the logic of hypothesizing a relationship between attitudes toward dental health and PHP scores seems specious.

B. Method

1. *Subjects*

Thirty-two of 36 randomly selected male college students agreed to participate in a dental health education project. Each *S* was paid $2 in recognition of the time required.

2. *Procedures*

Participation in the project included taking the attitude measure, being present for an initial dental examination, a group instruction session, and

two postinstruction dental examinations. During the initial dental examination the *S*s' teeth were temporarily stained with a solution which made accumulations of plaque visible. Each *S*'s teeth were scored for plaque accumulations using the PHP index. PHP scores can range from 0-30 for a given individual with lower scores indicating lesser amounts of plaque present on the teeth (i.e., better dental care behavior). *S*s were permitted to observe the plaque on their teeth via the staining procedure, but were not given any information regarding their PHP scores.

One week later prior to beginning the group instruction session all *S*s were administered a questionnaire including four items designed to assess the individual's attitudes about dental health. These Likert-type items focused on the respondent's attitudes with respect to the preventability of dental problems and the personal and social importance of healthy teeth. Each item was scored 1-3 with lower scores indicating a pro-dental-health attitude. Scott's Homogeneity Ratio (6) was .31 for the four-item scale (nearly optimal for this indicator of the average level of interitem correlation).

After completing the questionnaire, *S*s received instruction regarding the seriousness of plaque as a dental health problem and the specific brushing and flossing techniques which can reduce plaque accumulations. A combination of lecture, demonstration, and videotape was utilized in an effort to produce an interesting and informative one hour session.

*S*s were examined, and PHP scores assessed one week after the group instruction session. Following this examination, the dental assistant explained that bureaucratic complications had arisen which would cause a temporary delay in paying participants in the project. *S*s were contacted again five weeks after the group instruction session and asked to come into the clinic to get the promised $2 now that the bureaucratic complications had been resolved. When an *S* arrived, he was asked to submit to another dental examination. All *S*s agreed to be examined, permitting a third round of PHP scores to be collected. The *S*s were then paid $2 and debriefed. The dental assistant conducting both postinstruction examinations was blind with respect to the *S*s' scores on the Attitude Toward Dental Health Scale.

C. Results

The correlations between scores on the Attitude Toward Dental Health Scale and scores on the PHP index used in the three dental examinations were computed. The following correlation coefficients obtained: attitude and preinstruction PHP scores = .11 (ns); attitude and one week, post-

instruction PHP scores = .55 ($p < .01$); attitude and five week, postinstruction PHP scores = .50 ($p < .01$). Inspection of this pattern of correlational values indicates that while the quality of dental care behavior as reflected in the PHP index was not associated with attitudes toward dental health prior to the instructional session, strong attitude-behavior correlations emerged with respect to the postinstruction data. Tests of the significance of the differences observed between these correlation coefficients further revealed that the attitude-behavior coefficients obtained following the group instruction session (.55 and .50, respectively) were significantly higher than the preinstruction attitude-behavior correlation (.11) with $p < .05$ in both comparisons. The attitude-behavior correlations for the one week *versus* the five week postinstruction examinations were not significantly different from one another.[2]

D. Discussion

For over 40 years psychologists have questioned the degree to which verbally expressed attitudes and overt behavior covary. Legitimate concerns have been raised about the quality of attitude measurement techniques and about our understanding of the personal and situational factors which can intervene to reduce attitude-behavior consistency. With very few exceptions (1, 2, 7), however, little concern has been evinced regarding the appropriateness of the behavioral measures employed in documenting attitude-behavior discrepancies. Such an omission is unfortunate because it avoids specification of the types of behaviors which attitudes should be expected to predict.

The nonsignificant correlation between attitudes toward dental health and preinstruction PHP scores does not indicate attitude-behavior inconsistency, but rather suggests the problems of selecting a suitable behavioral measure with which to compare attitudinal data. That is, an investigator

[2] One might have anticipated a significant difference between the two postinstruction correlations. The *S*s knew they would be examined again one week after the group instruction session, and desires to make a favorable impression on the dental assistant could have generated pressures toward relative uniformity of behavior across *S*s during the first week; pressures that would dissipate once the expected examination had been concluded. Thereafter, one might argue that attitude-behavior correlations would increase an attitudinal variation began to operate in the absence of situational pressures to be a "good subject." The lack of such a pattern in our data probably indicates that within the context of this experiment such pressures were minimal. Had we opted to reward evidence of improved dental care by promising a $5 bonus for lower PHP scores at the first postinstruction examination, we might well have postponed the emergence of significant attitude-behavior correlations until the later, surprise checkup. Such data, however, would only illustrate that individual variation in behavior can be inhibited by certain reinforcement contingencies and not that attitudes are irrelevant to determining the direction that behavior will take.

interested in obtaining validity data on the Attitude Toward Dental Health Scale might well have chosen to compare scores on this measure with scores on the PHP index. The logic of this approach is straightforward: favorable attitudes about dental health should imply behavior consistent with the realization of dental health which should in turn be reflected by relatively low accumulations of dental plaque. Yet, such reasoning assumes that the individual recognizes the seriousness of plaque as a dental problem and knows how to go about preventing or ameliorating the problem: assumptions which are likely unwarranted. To infer that scores on the attitude measure are unrelated to behavior because of the low correlation with preinstruction PHP scores is to ignore that an attitude can only be associated with *effective* behavior when the person's information level is sufficient to make effective behavior a legitimate possibility. Once adequate information was provided, then the interplay of that information with the pre-existing attitude resulted in predictable behavioral variation.

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INTEGRATION THEORY AND INOCULATION THEORY AS EXPLANATIONS OF THE "PAPER TIGER" EFFECT*[1]

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SUMMARY

This experiment compared a weighted-average model from information integration theory with McGuire's inoculation theory as explanations of the "paper tiger" effect. *S*s were 24 male and 24 female American college students. Procedure and design were similar to that used by McGuire, and his messages were used verbatim. Each *S* indicated his attitude on each of four health issues and also made direct estimates of the weight and scale value of each piece of information upon his attitude. An apparent paper tiger effect was observed for some issues, but the opposite effect was observed for other issues. The predictions of the averaging model were quite good in six of eight cases. The two discrepancies seemed to reflect an underestimation of the importance of attacking message. Overall, the results were interpreted as supportive of the informational interpretation. No need was found for the motivational concepts of belief threat and refutational practice used in inoculation theory.

A. INTRODUCTION

1. *Information Integration Theory*

The basic principle in the theory of attitudes proposed by Anderson (3) is the principle of information integration. Attitudes are considered to result from a processing of incoming information, and from the integration of this new information with the previously developed attitude. This general view has received an exact mathematical formulation in terms of the averaging hypothesis: attitudes are considered to develop and change as weighted averages of stimulus information.

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An extensive body of empirical evidence underlies this theory. Key support comes from the parallelism prediction which states that data from a factorial design should, under conditions of equal weighting, plot as a family of parallel lines. This parallelism prediction has been verified in a series of experiments on attitudes toward U.S. Presidents (5, 7, 22), and it has also been supported in numerous experiments on person perception (2, 4, 6, 8, 10). In addition, critical qualitative tests have nearly always supported the averaging hypothesis and ruled out the alternative summation hypothesis adopted by Fishbein (12) and others.

The purpose of the present paper is to compare information integration theory with McGuire's (19) inoculation theory. McGuire's theory makes considerable use of various motivational concepts. However, the evidence for these motivational concepts is tenuous, and most of the facts can be explained in simpler information processing terms.

2. *Inoculation Theory*

McGuire's theory of inoculation is primarily concerned with the problem of resistance to persuasion. According to the theory, ability to resist persuasion is determined by the person's skill at refuting arguments against his beliefs. This skill is assumed to depend on two factors: motivation and practice.

To test this theory, McGuire selected "cultural truisms" (e.g., "It's a good idea to brush your teeth after every meal if at all possible"). For each truism, he developed two types of defense messages, the Supportive Defense, and the Refutational Defense. The Supportive Defense contained only positive reassuring information supporting belief in the truism. The Refutational Defense mentioned arguments against the truism and then extensively refuted those arguments.

McGuire argued that the Supportive Defense should leave the belief extremely vulnerable to attack. Since truisms are rarely threatened, the person lacks motivation to defend them. Lacking motivation, he fails to get practice at refuting arguments against the belief. The Supportive Defense fails to arouse any threat, and hence fails to provide any practice. Therefore, it should produce little or no resistance to persuasion.

In contrast, the Refutational Defense should produce considerable resistance because the mention of arguments against the truism should be threatening. That threat should motivate the *S* to practice the subsequent refutational arguments.

An impressive series of experiments by McGuire obtained considerable

support for various predictions from this theoretical system. However, this support is all indirect. The theory rests on very specific assumptions about causal mechanisms for which the evidence is extremely circumstantial, as has been pointed out by Tannenbaum (23), and by Kiesler, Collins, and Miller (16, p. 141). It is quite possible, therefore, that some other theory might do as well or better.

In fact, most of the results obtained by McGuire can be explained more simply in terms of information integration. The present report concentrates upon one specific result: namely, the "paper tiger" effect.

3. *The "Paper Tiger" Effect*

McGuire found that the Supportive Defense increased the *S*'s belief in the truism, whereas the Refutational Defense left the belief unchanged. This effect of the Supportive Defense was labeled "strengthening." The label seemed appropriate, since an increase in the extremity of an attitude usually reflects an increase in its strength. However, when a message attacking the truism was given, it was found that the Supportive Defense had conferred much less resistance than the Refutational Defense. The supposedly stronger attitude induced by the Supportive Defense was in fact more vulnerable to attack. McGuire labeled this paradoxical pattern the "paper tiger" effect, and interpreted it in terms of the motivation-practice framework noted above (19, pp. 207-208).

The seeming paradox of the paper tiger effect vanishes when viewed from the perspective of information integration theory. To describe an attitude, integration theory uses two parameters: a scale value, s; and a weight, w. The scale value represents location along the attitude dimension. The weight represents the importance or strength of the attitude (that is, its resistance to change). Typically, these two parameters are correlated, but this is not always true, since a moderate opinion may be held quite firmly. The paradoxical character of the paper tiger effect comes from the implicit assumption that extremity of scale value is a direct index of resistance to change.

The informational interpretation of the paper tiger effect depends on the parameters of the defense messages. It is assumed that the scale value of the Refutational Defense is approximately equal to that of the initial opinion, whereas the scale value of the Supportive Defense is more extreme. This assumption seems reasonable in view of McGuire's description of his messages. The Supportive Defense contained only positive arguments, whereas the Refutational Defense contained both positive and nega-

tive information. Thus, the average value of the arguments would be greater in the Supportive Defense, and it would be expected to have a more extreme scale value. On this basis, the scale value of the attitude itself should become more extreme after the Supportive Defense, but should remain about the same after the Refutational Defense. This simple difference in scale value could account for the "strengthening" effect obtained by McGuire.

It is also assumed that the Refutational Defense has greater weight than the Supportive Defense. This assumption also seems reasonable in view of McGuire's description of his messages; indeed there is more than one informational mechanism that could produce this result. Perhaps the simplest possibility is that the Refutational Defense, since it also includes negative arguments, effectively contains more information than the Supportive Defense. It is also possible, however, that the opening statements of the Refutational Defense serve as an attentional cue which, without producing any threat, does produce greater attention to the subsequent arguments. Such attentional factors are known to be quite important (6, p. 68*f*). Theoretically, the weight parameter of the defense message adds to the weight of the initial attitude. Under either interpretation, therefore, the weight parameter of the attitude would be greater following the Refutational Defense and so would be more resistant to change.

B. Method

1. *Subjects*

*S*s were 24 male and 24 female volunteers from introductory psychology at the University of California, San Diego. This *S* population was comparable to that used by McGuire in his work on inoculation theory. They received course credit for their participation; and were run in groups, usually four at a time, though sometimes fewer, in a session lasting about 50 minutes. All *S*s in a group received the same sequence of stimulus materials.

2. *Procedure*

The experimental procedure was quite similar to that used by McGuire (19) in his work on inoculation theory. Each *S* served in four message conditions, one for each of the four health-related cultural truisms. Each condition included a Supportive Defense or a Refutational Defense, with or without a subsequent Attack. A preliminary measurement was taken of the

initial attitudes on all four issues. In each condition, the *S* read a message, or messages, and indicated his new attitude. He also rated the importance of each message and of his initial opinion as determinants of his new attitude. After all four conditions had been completed, the *S* then reread all of the messages and rated the scale value of each communication.

3. *Messages*

The Supportive Defense, Refutational Defense, and Attack messages developed by McGuire (9, 17, 18)[2] were used verbatim. Each message was about 600 words in length, divided into three paragraphs. According to McGuire, the Supportive Defense is intended to be nonthreatening and consists of positive arguments in favor of the truism. In contrast, the Refutational Defense is intended to be threatening, beginning with several arguments attacking a particular truism, and then refuting those arguments.

Since two alternative forms of each message were available, one Supportive and one Refutational Defense were chosen randomly for each health issue. The Attack messages were then chosen so that the arguments in each Attack were different from those in the corresponding Refutational Defense.

4. *Stimulus Presentation*

Each *S* received two booklets, one of messages, and one of questionnaires. The message booklet had two parts. The first part contained the four message conditions. The second part, used for collecting ratings of scale value, repeated the same messages in the same order.

The questionnaire booklet had four parts. The first part was McGuire's opinionnaire, which included four items for each issue, which the *S*s marked on a scale with 15 steps from Definitely False to Definitely True. The initial attitude was taken as the mean rating of the four corresponding items.

The second part of the questionnaire booklet contained an attitude

[2] The messages used in McGuire (17), ADI No. 6629, are slightly different from those used in Anderson and McGuire (9) and McGuire (18), ADI No. 7058. The messages on all of the issues except penicillin are exactly the same; the attacking messages for the penicillin issue, however, are considerably longer in Anderson and McGuire (9) and McGuire (18) than in McGuire (17). The longer messages were used in this study. Both the messages and McGuire's opinionnaire are on deposit with the American Documentation Institute, c/o Microfiche Publications, 440 Park Avenue South, New York, New York 10016; pay in advance $5.00 for photocopy; $1.50 for microfiche. Postage outside the U.S. and Canada is $2.00 for a photocopy or $.50 for a fiche.

questionnaire and an importance rating scale for each message condition. After reading the message(s) in a given condition, the *S* rerated the four items used in the initial pretest of the particular attitude. He then rated the importance or weight of both his initial opinion and each message, as determinants of his new attitude on the given issue. Each importance rating was made by marking a 10-cm line running from Not Important to Very Important. One such line was provided for the initial opinion, and for each message in the condition. This procedure was followed for each of the issues in turn.

The third part of the questionnaire booklet repeated the four attitude items for each message. The *S* reread the messages in the second part of the message booklet, and then rerated the items to give his estimate of the scale value of each of the messages, *per se*. Before going through this procedure, the *S* was instructed to judge each message separately on how favorable or unfavorable that message was toward the issue, and that his personal belief on the issue was not relevant to this judgment.

Finally, the fourth part of the questionnaire booklet repeated the attitude questionnaire used in the first part, with *S*s instructed to rate their pre-experimental attitudes. This measure was obtained to assess possible shift in self-perception of belief following attack. Since these ratings were virtually identical to those in the pretest, they will not be considered here.

5. *Issue Replication*

To achieve balance in the design, a 4 × 4 greco-latin square was employed to balance the four health issues across the four message conditions. The four rows of this square constituted the four issue replications, each a different sequence of the four message conditions. Thus, each *S* judged each of the issues, in a different message condition. Over a subgroup of four *S*s, each issue occurred once with each message condition. Further, each issue and each message condition occurred equally often at each serial position within the square.

6. *Testing the Integration Model*

Most previous tests of the averaging model have relied on the parallelism prediction, but parallelism depends on the assumptions of equal weighting and independence, neither of which was expected to be satisfied here. Specifically, it was expected that different messages would have different natural weights, and that the effective weight of any one message might depend on which other message it was paired with. Accordingly, the

present test of the averaging model was based on the use of direct subjective estimates of the weight and scale value of each single message.

The subjective estimates of the weight parameter were obtained *in situ* in order to allow for possible interaction among the messages. In contrast, the subjective estimates of the scale values were obtained separately at the end of the experiment in order to avoid contamination by generalized halo effects (2, 8).

The justification for using direct subjective estimates of the parameters comes from previous work on integration theory. There is extensive evidence, at least in person perception (4), that scale values are effectively constant from one combination to another. The work on attitudes toward U.S. Presidents (5, 7, 22) shows that even fairly complex messages can be represented by a single scale value. Both lines of work also show that *S*s can make valid evaluative judgments on an interval scale. Some work (10) also suggested that *S*s can judge weight on a ratio scale, although this aspect of procedure was somewhat uncertain. As will be seen, the present results provide some moderate support for this latter aspect.

C. Results

1. *Averaging Model Analysis*

When the *S* receives a single communication, his resultant attitude is theoretically the average of his initial opinion and the scale value of the message. For the present defense conditions, therefore, the final attitude would be

$$R = (w_o s_o + w_d s_d)/(w_o + w_d), \qquad [1]$$

where w_o and s_o are the weight and scale value of the initial attitude, w_d and s_d are the weight and scale value of the defense message.

The question is whether or not the *S*'s final attitude is predictable from his separate estimates of the weights and scale values. For this test, the scale value of the initial opinion was taken directly from the first part of the questionnaire booklet. The scale values of the messages were taken from the third part of the booklet. Finally, the weight estimates for both the initial opinion and the messages were taken from the second part of the booklet. The weight estimates were normalized to add to unity by dividing each weight by the sum of the weights, as required by the averaging model. This prediction method was applied to the data for each *S* and the overall means are shown in Table 1.

TABLE 1
PREDICTED AND OBTAINED ATTITUDES

Attack condition	Issue replication	Defense type	Initial attitude + Defense + Attack =	Predicted	Observed	Difference
Defense only	1 & 2	Supp	.52(12.48) + .48(13.86)	13.14	13.07	.07
		Ref	.52(10.35) + .48(13.57)	11.90	12.50	−.60
	3 & 4	Supp	.53(9.71) + .47(13.59)	11.53	11.44	.09
		Ref	.58(11.88) + .42(13.53)	12.57	12.35	.22
Defense and attack	1 & 2	Supp	.36(10.05) + .27(13.42) + .37(3.27)	8.45	6.83	1.62
		Ref	.44(11.69) + .37(13.20) + .19(5.08)	10.99	10.97	.02
	3 & 4	Supp	.39(11.37) + .35(12.75) + .26(5.76)	10.39	10.87	−.48
		Ref	.34(9.52) + .28(12.93) + .38(3.43)	8.16	6.87	1.29

Note: The numbers within parentheses are estimated scale values, and the preceding numbers outside the parentheses are the corresponding weights of the message or opinion listed in each column. See text.

To illustrate the procedure, consider the top row of Table 1. In this condition, the mean scale value of the initial attitude was 12.48 and the estimated mean scale value of the defense message was 13.86. Their respective normalized, or relative, weights were estimated as .52 and .48 so that the predicted attitude equals 13.14. This predicted attitude differs from the observed value by only .07 on the 15-step rating scale.

Predictions for the four defense-only conditions are quite good. To test goodness-of-fit, each S was given a score equal to the signed difference between his predicted and actual attitude for each condition. The overall mean of these difference scores was only .05 which did not approach significance. Further, none of the four listed mean differences in Table 1 was significantly different from zero.

Two points of incidental interest appear in the data. First, the weight of the initial attitude is only a little larger than 1/2. As a consequence, the final attitude lies about midway between the initial attitude and the scale value of the defense message. Second, the estimated scale values of the defense messages are all nearly equal so that differences in final attitude reflect corresponding differences in initial attitude toward the various issues.

While the averaging model did quite well in the defense-only conditions, a different pattern of results emerged in the defense-plus-attack conditions. In these conditions, there are two messages so the prediction equation must be written,

$$R = (w_o s_o + w_d s_d + w_a s_a)/(w_o + w_d + w_a), \qquad [2]$$

where w_a and s_a are the weight and scale value of the attack, and the other terms have the same meaning as in Equation 1.

Predictions were made with the use of Equation 2 in the same way as Equation 1 above, and the results are listed in the lower half of Table 1. The differences in the last column show that the predictions were quite good in two cases, but that there were substantial discrepancies in two other cases. The statistical analysis confirmed the visual inspection, yielding F ratios of 25.79, .24, 1.44, and 8.05, each on 1/23 *df*, for the four respective mean differences in Table 1. The two larger Fs are significant at the .01 level, while the two smaller Fs do not approach significance. Both discrepant cases show the same pattern, with the actual attitude being more extreme than the predicted attitude. Closer study of Table 1 suggests

that the *S*s underestimated the influence of the attack message on their final opinion.

2. *Nonreplication of the Paper Tiger Effect*

Replication of the paper tiger effect ran into difficulty because of differences among the messages and issues. The effect can be seen in the left panel of Figure 1 which plots the data for Issue Replications 1 and 2. When only a defense message is given, the attitude produced by the Supportive Defense is higher than that produced by the Refutational Defense. This agrees with the "strengthening" effect reported by McGuire.

A marked change is produced by the attack. The attitude induced by the

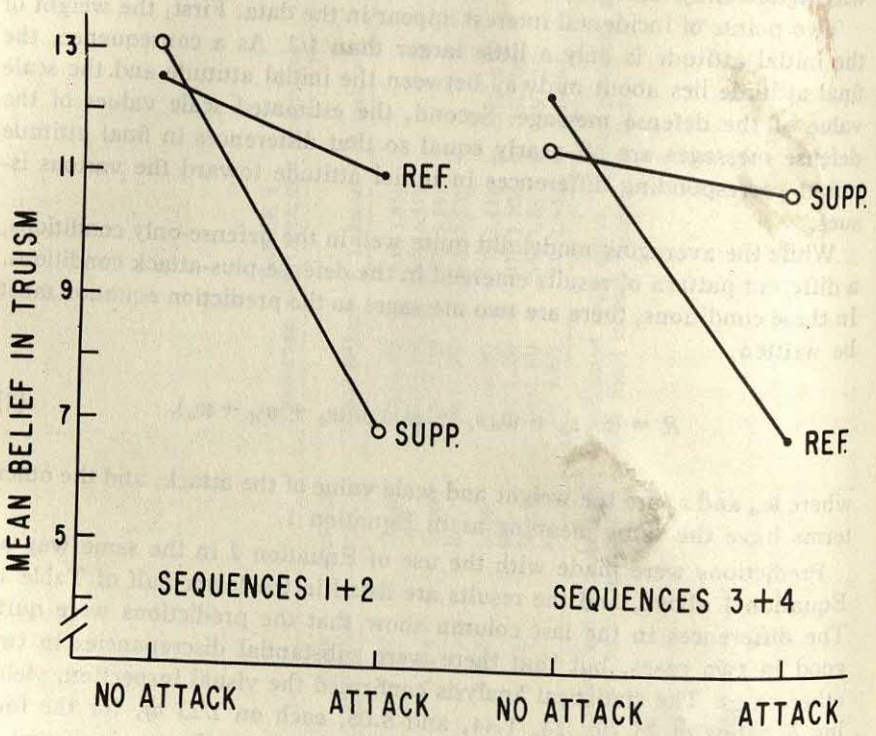

FIGURE 1
MEAN BELIEF IN TRUISM AS A FUNCTION OF MESSAGE CONDITION
Abbreviations by the curves stand for Refutational and Supportive Defenses, respectively.

Refutational Defense changes little, whereas the attitude induced by the Supportive Defense changes greatly, producing a strong crossover interaction. This pattern, in which the Supportive Defense produces a more extreme attitude, but one that is more vulnerable to attack, is precisely the "paper tiger" effect reported by McGuire.

Unfortunately, although the same pattern appears in the right panel of Figure 1, the role of the defense messages is exactly opposite. For Issue Replications 3 and 4, the Refutational Defense produced both a more extreme and a more vulnerable attitude. The pattern is still that of the paper tiger effect, to be sure, but the role of the defenses is reversed. This anomalous finding is quite reliable, since the three-way interaction between Defense, Attack, and Issue Replication was highly significant ($F = 20.93$, $df = 3/44$, $p < .001$). Thus, a theoretical interpretation in terms of the relative inoculating power of Supportive and Refutational Defenses is no longer possible.

Since McGuire presents his results averaged over issue replications, a proper comparison requires that the same be done here. When this is done, however, there is virtually no difference between the Supportive and Refutational Defenses, either in the defense-only or in the defense-plus-attack conditions. Thus, McGuire's paper tiger effect failed to be replicated.

In this connection, it should be noted that the weight estimates of Table 1 follow the reasoning of Section A.3 above only for Issue Replications 1 and 2. In this case, the weight parameter of the Refutational Defense is greater than for the Supportive Defense; and correspondingly, the weight of the attack is greater following the Supportive Defense than following the Refutational Defense. These messages had been used in the pilot work which had appeared to support the information-theoretical interpretation of the paper tiger effect. However, Issue Replications 3 and 4 gave exactly opposite results, in Figure 1 as already noted, and also in the weight parameters of Table 1.

Of themselves, the large issue and message differences do not present any theoretical difficulty to the integration model. Indeed, the model predictions were about as accurate for Issue Replications 1 and 2 as for 3 and 4. Tests of inoculation theory, however, would seem to be largely dependent on assessing and standardizing the messages in terms of informational content.

D. Discussion

1. *Inoculation Theory*

The present results provide no support for inoculation theory. Both panels of Figure 1 show the marked crossover pattern of the paper tiger effect, but these crossovers merely represent issue differences. Averaged over issues, there is virtually no difference between the Supportive Defense and the Refutational Defense. Although this failure of the paper tiger effect to replicate could result from procedural differences, the present procedure followed that used by McGuire fairly closely.

Regardless of the reason, the failure of the paper tiger effect to be replicated brings up the disturbing realization that there is no independent assessment of the messages that have been used in inoculation theory. They have not been standardized in terms of their informational content, and there is no direct evidence for their presumed difference in threatening power. Indeed, it may be doubted that American college students would feel at all threatened by the prospect of reading about some disadvantages of annual medical checkups. Without such threat, however, inoculation theory does not apply.

A similar point has been made by Tannenbaum (23) and by Kiesler, Collins, and Miller (16, p. 141). These writers emphasize that the evidence for the basic motivational concepts of inoculation theory is almost entirely circumstantial and indirect. That the Refutational Defense is threatening and that this threat causes the *S*s to practice the arguments are merely assumptions for which direct evidence is lacking. At present, therefore, the terms Supportive and Refutational are little more than names, and the need for standardization of the messages is clear from the strong issue interaction of Figure 1.

McGuire's inoculation papers represent a program of research that is remarkable in ingenuity, variety, and concentration. However, most of the results can be interpreted in simpler information processing terms without the need for the special processes assumed in inoculation theory. As McGuire himself (20, p. 272) has observed, the attitude area is replete with theoretical systems that have had reasonable predictive success, but whose assumed causal processes have not been verified. This same observation may also apply to inoculation theory.

2. *Congruity Theory*

Tannenbaum (23) has discussed the problem of resistance to persuasion from the standpoint of congruity theory. His emphasis on source effects,

largely ignored in inoculation theory, is especially important. Moreover, he has attempted to delineate the specific mechanisms underlying the inoculative effects reported by McGuire. But despite the value of Tannenbaum's contributions, the validity of congruity principle itself is subject to serious question (21; 24, p. 59). Tannenbaum (23) presents two experiments that he claims to be incompatible with an information processing approach. In fact, information integration theory seems to handle these data even better than congruity theory (3, p. 188).

3. *Summation Theory*

A continuing controversy in attitude theory has focussed on the question of whether people add or average stimulus information. The present results support the averaging hypothesis and infirm the summation model used by Fishbein (12) and others. The same conclusion follows from the dissertation research of K. J. Kaplan (13, 14), one of Fishbein's students, who used a design similar in certain respects to that used here.

Kaplan's *S*s rated overall likeableness of a Mr. X who was described by two installments of personality adjectives. Two ratings of each single adjective were obtained: of its likeableness, which corresponds to its scale value, s; and of the probability that Mr. X actually had the trait, which corresponds to its weight, w. These ratings were used to predict overall likeableness and yielded correlations around .70, at least as large as in previous work on summation theory.

However, the correlation coefficient is not a proper test of goodness of fit; high correlations can readily be obtained even from seriously incorrect models (3, p. 192*f*; 11). In fact, as Kaplan apparently recognized, his data (Table 5, bottom) did reveal a serious discrepancy from the summation model. When the second installment of adjectives is near neutral in value, the summation model predicts near zero change in attitude. But the data showed that the added neutral information actually reduced the extremity of both the positive and negative attitudes. That is precisely what is predicted by averaging theory. Indeed, this particular comparison is just another instance of the numerous critical tests that have been made between the summation and averaging formulations (3, p. 192-193; 6, p. 14).

4. *Information Integration Theory*

At the empirical level, the present results have given reasonable support for the integration theory analysis of the cultural truisms studied in inoculation theory. Although two of the eight predictions from the averaging model fell short, even they make qualitative sense. Provisionally, at least,

it seems fair to think that the information-theoretical approach that has been developed in previous work on attitudes (1, 3, 5, 6, 7, 22) also applies to the kinds of issues studied in inoculation theory.

This conclusion has special methodological interest. In the inoculation studies, as in much of attitude theory, the usual methods of functional measurement do not apply directly because the assumption of parameter independence is not expected to hold. It is necessary, therefore, to rely on separate judgments of the weight and/or scale value of each component within context as was done here. The basic idea of functional measurement is still present, since the validation rests on the integration function, but the parameter estimation scheme itself rests on additional assumptions. Although there are obviously many ways in which this approach could fail, the present results provide some hope that it may have some degree of success. To the extent that it does, it provides a simple direct assessment of each message within the conceptual representation of the basic theory. In particular, the effective weight parameters can be estimated with allowance for possible message interactions, such as inconsistency or redundancy.

At the conceptual level, the basic idea of information integration theory is that attitudes grow and change by the continual incorporation of new information. Further, this integration of information is considered to obey a general cognitive algebra (3, 6). Thus, the general principle of information integration takes on specific, testable form.

Two other approaches to attitudes—namely, summation theory and congruity theory—also rely on the use of mathematical models. These models, however, have not been very successful. The summation model cannot account for the averaging-*versus*-adding data noted above. The congruity model cannot account for the set-size effect (3, p. 188). In contrast, the averaging model from integration theory provides a connected account of a substantial body of fairly complex results.

Inoculation theory itself strictly applies only to "cultural truisms," widely accepted beliefs that are almost never attacked (19, p. 200-201). Once these beliefs come under attack, they cease to be truisms and inoculation theory may no longer apply. From the present view, cultural truisms constitute only a small class of attitudes. They should not require special conceptual analysis. Thus, integration theory has largely avoided the use of motivational concepts, such as have been central to the inoculation studies, because it seems reasonable to try to account for the data in simpler

informational terms. Even when motivation concepts are necessary, it may still be possible to handle these as informational concepts (15).

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EFFECTS OF INFORMATION, PAYOFF MAGNITUDE, AND FAVORABILITY OF ALTERNATIVE SETTLEMENT ON BARGAINING OUTCOMES*

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SUMMARY

Three experiments were conducted to determine if payoff magnitude and favorability of alternative settlements moderate the effect of information on bargaining outcomes or have a direct effect on these outcomes. The first experiment evaluated the hypothesis that unilateral information will be either an advantage or a disadvantage, compared to no-information or bilateral information, depending upon the relative magnitude of the two bargainer's payoffs. The data from 144 male and female, graduate and undergraduate management students did not support this hypothesis, but another complex interaction was found. Bargainers with unequal payoffs settled closer to the equal-profit price in the bilateral information condition than in the no-information condition. In the second experiment with 96 male and female, graduate and undergraduate management students, the bargainers with a more favorable alternative settlement obtained a better settlement in the bilateral and unilateral information conditions, but the difference was not significant in the no-information condition. There was some indication that unilaterally informed bargainers with a favorable alternative settlement had an advantage compared to bargainers in the no-information condition, and this tendency was confirmed in the third experiment with 32 male and female, undergraduate management students.

A. INTRODUCTION

The role of information in bargaining has been a subject of considerable interest during the last few years. Several studies have been conducted to determine the consequences of providing one bargainer with information about the opponent's payoff at each possible settlement. At first glance,

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unilateral knowledge about opponent payoffs may appear to be an advantage. However, Schelling (13) has proposed that unilateral information can actually be a disadvantage, and this proposition has been elaborated by Hamner and Harnett (4). According to these writers, the aspirations and demands of an informed bargainer are influenced by what he knows to be a fair settlement and are less likely to be unreasonably hard or soft than the demands of an uninformed bargainer. When both bargainers are informed, they usually reach a quick agreement at the settlement which provides an equal profit to both parties. When neither bargainer is informed, the random distribution of hard, moderate, and soft demands among bargainers tends to produce a greater variety of settlements, but the mean of these settlements is close to the equal-split settlement. When a bargainer has unilateral information, his initially moderate demands will tend to result in a settlement providing a larger share of the profits to an opponent who is unreasonably hard and will tend to result in an equal-split settlement with an opponent who is unreasonably soft. In other words, unilateral information will result in lower earnings, on the average, than bilateral information or no information.

Three studies have provided support for the hypothesis that unilateral information about opponent payoffs is a disadvantage. In one study (4), the earnings of unilaterally informed bargainers were less than the earnings of their opponents and were also less than the earnings of bargainers in a no-information condition. In the other two studies (5, 6) earnings were lower for unilaterally informed bargainers than for bargainers in a bilateral information condition. On the other hand, two studies (10, 14) failed to find lower earnings for a unilaterally informed bargainer than for his opponent. Moreover, two studies (1, 2) failed to find any disadvantage for unilateral information as compared to bilateral information, and one study (6) failed to find any disadvantage for unilateral information as compared to no information.

The results from these previous studies suggest that unilateral information may only be a disadvantage in certain situations. However, the crucial characteristics of these situations are not evident because previous investigators have not manipulated situational variables that may be moderating the effects of information on bargaining outcomes. Another limitation of previous research is the use of a very narrow definition of information. The tendency to focus upon information about payoffs reflects the implicit assumption that a bargainer's primary goal is either an equal-payoff settlement or a settlement giving him a larger share of the profits than the

opponent. On the other hand, if one assumes that the primary goal of a bargainer is to maximize his own profits, regardless of opponent profits, then information about the opponent's payoffs is less useful than information about the opponent's resistance point. Resistance point is the least favorable settlement a bargainer will accept to avoid a deadlock, and knowledge of the opponent's resistance point can aid a bargainer in planning a strategy to obtain the greatest possible concessions from the opponent. In some cases the opponent's resistance point can be inferred from information about his payoffs (e.g., if the breakeven point is known), but resistance point can be inferred more accurately in most cases from information about other crucial factors, such as the opponent's best alternative settlement.

The purpose of the research reported in this article was to determine if the effect of information is moderated by either of two situational variables: the relative magnitude of payoffs for the two bargainers and their alternative settlements. In research on the latter variable, information about the opponent's alternative settlement was used instead of information about opponent payoffs. A secondary objective of the research was to assess the effect of the situational variables themselves on bargaining outcomes. The literature relevant to this question is limited and will be summarized briefly in the introduction to each separate experiment.

B. Experiment I

The first experiment was conducted to investigate the effects of payoff magnitude and information about opponent payoffs. Kent (10) has hypothesized that these two variables will interact to determine whether unilateral information will be an advantage or a disadvantage to a bargainer. According to Kent, if all of the possible settlements are known and can be ordered according to the preferences of each bargainer, and if an uninformed bargainer assumes that the payoffs of the opponent are symmetrical to his own payoffs, then the following hypotheses apply:

HYP 1: When a bargainer has larger payoffs than his opponent, unilateral information is a disadvantage compared to no information for either side and is an advantage compared to bilateral information.

HYP 2: When a bargainer has smaller payoffs than his opponent, unilateral information is an advantage compared to no information for either side and is a disadvantage compared to bilateral information.

HYP 3: When a bargainer's payoffs are equal to those of his opponent, unilateral information is neither an advantage nor a disadvantage.

In addition to the complex interaction predicted from these hypotheses, another interaction can be predicted from the following hypothesis;

HYP 4: The settlement will be closer to the equal-profit price in the bilateral information condition than in the no-information condition. This hypothesis has received support in studies by Fouraker and Siegel (3), Johnson and Cohen (7), and Siegel and Fouraker (14).

Previous research also suggests that the effects of information on a bargainer's aspirations and expectations will be reflected in his initial offer, as well as in subsequent demands. That is, informed bargainers may make less extreme initial offers than uninformed bargainers because they have more realistic aspirations at the beginning of the bargaining. Therefore the following hypothesis was also tested:

HYP 5: Informed bargainers make a softer initial offer than uninformed bargainers. This hypothesis has received support in several studies (1, 2, 4, 5, 8, 14), although it was not supported in one study (11).

1. *Method*

The *S*s were 144 undergraduates and graduate students from several management classes, and the bargaining game was one of several exercises carried out in these classes. The *S*s were told that the bargaining game tested their skill as a negotiator, and feedback concerning how well they performed their roles would be provided. A 3 × 3 experimental design was used, and eight same-sex dyads were randomly assigned to each of the nine cells. The bargaining game involved a wholesaler and a retailer who attempted to negotiate a price for the sale of some replacement parts. The nature and quantity of the parts were not specified.

The three information conditions were (*a*) no information for either bargainer, (*b*) unilateral information for the wholesaler, and (*c*) bilateral information. In the no-information condition, the *S*s were provided with a profit table showing their profit at each allowable settlement price, but information about opponent profits was not provided. In the bilateral information condition, the *S*s were given the profit table for both sides and were informed by the game instructions that both sides had complete information. In the unilateral information condition, the wholesalers were given the profit table for both sides and were informed by the instructions that the retailer had only his own profit table. The retailer in this condition was not told that the wholesaler had both profit tables. All *S*s who were

uninformed about opponent payoffs were told that the opponent's profits might or might not be of similar magnitude to their own.

The three levels of payoff magnitude included (*a*) larger payoffs for the wholesaler, (*b*) equal payoffs for wholesaler and retailer, and (*c*) larger payoffs for the retailer. Payoff magnitude was manipulated by means of different profit tables. The allowable settlement price in each condition ranged from \$10 to \$30, and there were 21 possible settlement points (e.g., \$10, \$11, \$12 . . . \$30). The bargainers with large potential payoffs could earn from \$0 to \$600, whereas the bargainers with small potential payoffs could earn from \$0 to \$200. In the equal payoff condition, both bargainers had a large potential payoff.

The *S*s sat opposite one another and were told to conceal their profit tables from the opponent. Written offers and counteroffers were the only form of communication that was allowed. The *S*s were encouraged to keep a "poker face" during the bargaining, and the *E* monitored the interaction to cut off any talking or obvious nonverbal expression. The wholesaler always made the first offer, and *S*s then alternated in making offers by passing back and forth a "bargaining record." There were no restrictions on offers except the requirement that only prices listed in the profit table could be offered. The *S*s were informed that they had 15 minutes in which to bargain, and if they failed to reach a settlement before the deadline, both sides would have a zero profit.[1]

2. *Results*

The mean and standard deviation of the settlement price in each condition can be found in Table 1. A two-way analysis of variance indicated that there was a significant main effect of payoff magnitude ($F = 12.64$, $df = 2/63$, $p < .01$). A significant Information × Payoff Magnitude interaction was also found ($F = 3.01$, $df = 2/63$, $p < .05$).

Post hoc individual comparisons were conducted to determine if the interaction supported the Kent hypotheses.[2] The settlement price in each unilateral information cell was compared with the settlement in the bilateral and no-information cells within the same payoff magnitude condition. Although the differences were usually in the predicted direction, none of

[1] Two dyads failed to reach a settlement before the deadline, and four dyads were discarded for violating the instructions; additional dyads were run to provide substitute data.

[2] The *post hoc* comparisons in this experiment and the second experiment were carried out by means of Duncan's Multiple Range Test; this is the least conservative procedure, but the comparisons were planned prior to examination of the data.

TABLE 1
Means and Standard Deviations for Experiment 1 (in Dollars)

Experimental condition	Settlement price		Wholesaler's IO		Retailer's IO	
	Mean	SD	Mean	SD	Mean	SD
No-info, W > R payoffs	19.0	2.73	28.0	4.04	16.0	6.59
No-info, W = R payoffs	21.4	2.62	27.9	4.02	12.5	5.35
No-info, W < R payoffs	19.1	2.99	27.8	4.43	12.4	5.21
W-info, W > R payoffs	17.2	2.12	26.4	3.38	12.1	2.23
W-info, W = R payoffs	20.1	2.17	27.9	3.73	13.1	3.23
W-info, W < R payoffs	20.9	1.55	26.6	3.27	12.2	3.58
Both-info, W > R payoffs	16.9	3.09	23.4	3.70	11.5	2.78
Both-info, W = R payoffs	20.0	0.53	26.9	4.09	12.6	1.92
Both-info, W < R payoffs	22.1	1.81	26.6	3.20	15.0	5.42

Note: IO = initial offer.

the comparisons was significant. A comparison of the profit earned by the unilaterally informed bargainer in the equal payoff condition with the profit earned by his uninformed opponent also failed to indicate a significant difference.

Additional *post hoc* comparisons were conducted to determine if the interaction supported HYP 4. This hypothesis was evaluated by determining if the settlement price was affected by payoff magnitude in the bilateral information condition but not in the no-information condition. In the bilateral information condition, the differences between the means were in the predicted direction, and the settlement price was significantly higher when the wholesaler had smaller payoffs than when his payoffs were larger than or equal to the payoffs of the retailer. In the no-information condition, the settlement means for the different payoff magnitude cells were not significantly different from each other. In the unilateral information condition, the results were similar to those for the bilateral information condition, although the differences between means were smaller.

The mean and standard deviation of the seller's initial offer and the buyer's initial offer can also be found in Table 1. An analysis of variance was conducted separately for each of these dependent variables in order to test HYP 5. None of the main effects or interactions was significant.

3. *Discussion*

The results failed to support the interaction between information and payoff magnitude hypothesized by Kent (10), although the difference between means was usually in the predicted direction. The finding that unilateral information was neither an advantage nor a disadvantage is

consistent with results from the majority of previous studies. The data also failed to support the hypothesis that informed bargainers make less extreme initial offers than uninformed bargainers, and this finding was not consistent with the majority of previous studies.

Some support was found for the hypothesis that informed bargainers are influenced by the norm of equal profits. In the bilateral information, equal-payoff condition, the settlement was usually very close to the equal-profit price ($20). However, in the unequal payoff conditions, bargainers with bilateral information usually settled at a point between the equal profit price and the price at which profits were proportional to the maximum payoffs for the two sides. These results suggest that the low payoff bargainer perceived the equal profit price as an equitable settlement, whereas the high payoff bargainer perceived the proportional profit price as an equitable settlement. Instead of a quick agreement at the equal-profit settlement, as predicted by Schelling (13), the discrepancy between these two perceptions of an equitable settlement may have created a state of conflict that could only be resolved when one or both bargainers was ready to change their perception or accept less than what was considered to be a fair share of the profits.

C. Experiment 2

The purpose of the second experiment was to investigate the effects of information about the opponent's alternative settlement, as well as the effect of the alternative settlements themselves. In some bargaining situations, if a settlement is not reached with the immediate opponent, there is another party with whom one can arrive at a satisfactory agreement. Even in the event that there is no alternative to dealing with the immediate opponent, as in Experiment 1, it is reasonable to assume the existence of an alternative settlement with a zero profit. It is likely that the favorability of bargaining positions for the two sides will depend in part on their alternative settlements. The more favorable a bargainer's alternative settlement, the less dependent he is upon dealing with the immediate opponent and the more demanding he can be. However, he must also consider the opponent's alternative, since the opponent cannot be expected to settle for less than his alternative. When a bargainer has a more favorable alternative settlement than the opponent, his bargaining position will be stronger than that of the opponent, other things being equal. Of course, this difference in bargaining positions may not be apparent to the bargainers if they have no knowledge about the magnitude of each other's alternative settlement.

A possible advantage of unilateral information about the opponent's alternative is that it allows a bargainer to plan a hard offer strategy designed to persuade the opponent to accept a settlement only slightly better than his alternative. It is nearly impossible to use such a strategy without information about the opponent's alternative, and when both bargainers are informed, the strategy is not likely to be effective. Unilateral information can also be an advantage if it strengthens a bargainer's aspirations. The knowledge that he has a stronger bargaining position than the opponent should result in greater expectation of obtaining a favorable settlement which in turn will lead to the use of a harder offer strategy. On the other hand, if an informed bargainer knows his position is weaker than that of the opponent, he may lower his aspirations and refrain from using a demanding offer strategy.

Prior research on the effects of unequal alternative settlements has been very limited. One study (9) found that bargainers with a more favorable alternative earned a larger profit from the settlement than their opponent. However, the comparison of an equal alternative condition with an unequal alternative condition failed to reveal any significant difference in the probability of a settlement or the type of settlement. Another study (12) found that the favorability of a bargainer's alternative settlement did not affect his initial offer or final offer to a programmed opponent. In both of these studies, the *S*s were not informed about the magnitude of the opponent's alternative settlement. No prior study has examined the possibility that information and favorability of alternatives interact in determining the bargaining outcome.

1. *Method*

The *S*s were 96 undergraduates and graduate students from several management classes. As in the first experiment, the bargaining game was a required class exercise. Eight same-sex dyads were randomly assigned to each of the six cells in a 2 × 3 experimental design. There were two levels of alternative settlement (favor seller *vs.* favor buyer), and three information conditions (no-information, unilateral information, and bilateral information).

The bargaining task involved a buyer and a seller who attempted to reach an agreement on the price of some unspecified machinery. All offers were made in writing on a bargaining record, and no other communication was permitted. The seller always made the first offer, and the *S*s then alternated in making offers until a settlement was reached or the bargain-

ing session was terminated. The *S*s were allowed 15 minutes in which to bargain, and they were told that if a deadlock occurred, both sides would take their alternative settlement.[3] Profit tables were not used, but both sides were given a list of 40 allowable settlement prices, which ranged from $4100 to $8000 and increased in $100 intervals (e.g., $4100, $4200, $4300, etc.). The *S*s were told that they could earn a profit at each of these prices, and the only restriction on offers was the requirement that each offer must consist of a price from the list.

Magnitude of alternative settlement was manipulated by means of the game instructions. The buyers were informed that there was another seller from whom they could buy the piece of machinery at a set price if no settlement was reached with the present seller. The sellers were likewise informed that there was another buyer who had made a firm offer for the machinery and would buy it if a deadlock resulted in the current negotiations. Both sides were instructed not to accept any price that was less favorable than their alternative settlement. In the conditions favoring the seller, the alternative settlement was $5600 for the seller and $7500 for the buyer. In the condition favoring the buyer, the alternative settlement was $4600 for the seller and $6500 for the buyer.

The information conditions were established by informing some *S*s about the price that the opponent could get in his alternative settlement. This information was provided to both parties in the bilateral information condition, but they were not told whether the opponent knew their alternative settlement. In the unilateral information condition, only the buyer was told what price the opponent could get in his alternative settlement. The seller in this condition was told that the buyer had an alternative settlement, but the amount was not specified and the information advantage of the seller was not pointed out. In the no-information condition, each party knew that the other party had an alternative settlement, but the *S*s did not know the amount of the opponent's alternative or whether the opponent had information about their alternative.

2. *Results*

The mean and standard deviation of the settlement price in each condition are presented in Table 2. A two-way analysis of variance indicated a significant main effect of alternative settlement ($F = 21.60$, $df = 1/42$, $p < .01$). The settlement price was higher when the seller had a more favorable

[3] Only two dyads failed to agree; additional *S*s were run to provide substitute data for these dyads and three other dyads who were discarded for violating the instructions.

alternative than when the buyer had a more favorable alternative. *Post hoc* comparisons were conducted to determine if this difference was significant in all information conditions. The difference was significant in the bilateral and unilateral information conditions but not in the no-information condition.

The main effect of information and the Information × Alternative Settlement interaction were not significant. However, examination of the cell means suggested that the unilaterally informed buyers may have obtained better settlements than the buyers in the no-information condition when the alternative settlement favored the buyer. Even though *post hoc* comparisons are not appropriate for drawing conclusions when there is not a significant main effect or interaction, these two cells were compared to determine if the data were promising enough to justify further research. A t test was conducted for the two cell means, and the results indicated a significant difference ($t = 2.13$, $df = 14$, $p < .05$).

The mean and standard deviation of the seller's initial offer and the buyer's initial offer can be found in Table 2. The two-way analysis of variance for each of these two dependent variables produced only one significant difference. The initial offer made by the buyers was harder when they had the more favorable alternative than when the sellers had the more favorable alternative ($F = 6.31$, $df = 1/42$, $p < .05$). The difference for the seller's initial offer was in the expected direction (that is, harder when the seller had a more favorable alternative) but did not reach an acceptable level of significance ($p < .15$).

3. *Discussion*

The finding that the settlement price was higher when the alternative settlements favored the seller than when the buyer was favored supports the conclusion that favorability of bargaining positions was partially dependent upon the alternative settlements. The difference between alternative

TABLE 2
Means and Standard Deviations for Experiment 2 (in Dollars)

Experimental condition	Settlement price		Seller's IO		Buyer's IO	
	Mean	SD	Mean	SD	Mean	SD
No-information, buyer-favored	5850	393	7162	1007	4788	889
No-information, seller-favored	6275	604	7425	669	5300	1161
Unilat. info., buyer-favored	5400	450	6900	1056	4362	378
Unilat. info., seller-favored	6175	453	7563	739	5012	633
Bilat. info., buyer-favored	5663	393	7012	839	4712	352
Bilat. info., seller-favored	6425	587	7237	646	5275	484

Note: IO = initial offer.

settlement conditions with respect to the settlement price was largest in the bilateral information condition and smallest in the no-information conditions. One possible explanation for these results is in terms of each bargainer's perception of what is an equitable settlement. In the bilateral information condition, the midpoint of the distance between the alternative settlements was probably perceived by both bargainers to be an equitable settlement. This information is consistent with the fact that the settlement in the bilateral-information, seller-favored condition ($6420) and the settlement in the bilateral-information, buyer-favored condition ($5660) were close to their respective midpoints ($6550 and $5550). For the no-information condition, there was no obvious equitable settlement, but *S*s who assumed the opponent's alternative was symmetrical to their own in terms of the range of allowable settlements would probably perceive the midpoint of this range ($6050) to be an equitable settlement. The settlements in the no-information condition were between $6050 and the midpoint of the settlement range established by the alternative settlements of the two bargainers. That is, in the no-information, seller-favored condition, the settlement ($6280) was between $6050 and $6550, whereas in the no-information, buyer-favored condition, the settlement ($5850) was between $6050 and $5550. Thus the settlements in the no-information condition appeared to be determined jointly by initial perceptions of an equitable settlement and the subsequent pattern of opponent offers which reflected the actual opponent alternative.

The results failed to support the hypothesis that unilateral information about the opponent's alternative settlement is either an advantage or a disadvantage. However, there was some indication that unilateral information in combination with a more favorable bargaining position may provide the informed bargainer with an advantage as compared to the no-information condition. The possibility that a bargainer is able to benefit from unilateral information when he has a strong bargaining position but not when he has a weak bargaining position could be explained by consideration of bargainer aspirations. Knowledge that one has a stronger bargaining position could result in higher aspirations and greater determination to pursue a hard offer strategy than would be likely without such knowledge or with the knowledge that one had a weak bargaining position.

D. Experiment 3

The third experiment was conducted in an attempt to replicate the tentative finding in Experiment 2 concerning the advantage of unilateral information for a bargainer with a strong bargaining position. Since some

of the unilaterally informed bargainers in Experiment 2 appeared to be to naive to benefit from their advantageous bargaining position, an attemp was made to simulate bargaining between slightly more sophisticated ba gainers. Consequently, *S*s with some bargaining experience were used, an they were given suggestions about basic bargaining strategy. In additio the unilaterally informed *S*s were made aware that the opponent did nc have knowledge of their information advantage. These changes in proce dure were designed to encourage the unilaterally informed bargainers t press for a settlement close to the opponent's alternative.

1. *Method*

The *S*s were 32 undergraduates from two of the same managemer classes used in Experiment 1. Eight same-sex dyads were randomly a signed to each of the two information conditions. These conditions were th no-information, buyer-favored and unilateral-information, buyer-favore conditions used in Experiment 2, and the procedures were the same a before except for some changes in the instructions.

All *S*s were given two strategy suggestions. *S*s were advised to make a initial offer that was harder than the price at which they hoped to settl The *S*s were also advised that they could probably assume the opponer would eventually be willing to accept a slightly better offer than h alternative settlement. The *S*s who did not know the magnitude of the opponent's alternative settlement were advised to estimate it during th bargaining. Finally, the unilaterally informed buyers were told that the opponent did not know the magnitude of the buyer's alternative settlemen

2. *Results*

The mean settlement price was $5838 in the no-information conditio and $5350 in the unilateral information condition. The standard deviatio was 475 in the no-information condition and 507 in the unilateral inform tion condition. The difference between the two means was significant (t = 1.99, $df = 14$, $p < .05$). The unilaterally informed buyers obtained a mor favorable settlement than the buyers in the no-information condition, jus as in Experiment 2.

3. *Discussion*

It is interesting to note that the mean settlements in this experiment wer almost identical to those for the corresponding conditions in Experimer 2. The attempt to encourage the *S*s to use a tougher bargaining strategy di

not have any apparent effect on the bargaining outcomes. In any event, the results from both experiments provide evidence that unilateral information about an uninformed opponent's alternative settlement can be an advantage for a bargainer with a strong bargaining position, as compared to no-information. The results also emphasize the desirability of distinguishing between information about opponent payoffs and information about the opponent's alternative.

A possible limitation to the generalizability of results from the present series of experiments and previous research is the exclusive use of students as *S*s. These students were relatively inexperienced as bargainers, and their behavior may have been different from the behavior of bargainers with years of experience. In addition, there has been no attempt to determine if cultural background moderates the effect of information on bargaining behavior. Most of the studies have used students from Midwestern universities in the United States, although the study by Kent (10) used students in Italy, and the sample in the present study included nearly 30% foreign-born students in addition to students from the New York area. While there was no indication of cultural differences in the pattern of results from these studies, future research should attempt to assess systematically the effects of bargainer experience and cultural background in interaction with various sources of information advantage.

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REPLICATIONS AND REFINEMENTS

Under this heading appear summaries of studies which, in 500 words or less, provide useful data substantiating, not substantiating, or refining what we think we know; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

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ACADEMIC ACHIEVEMENT MOTIVATION AND BIRTH ORDER IN ADULTS*[1]

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Much has been written about birth order as a factor in academic achievement and the attainment of eminence.[2] Firstborns and only children are supposedly the highly motivated achievers and attainers and seem, generally, the more conforming, more affiliation motivated, possibly more approval motivated, and may differ from later borns in other personality characteristics[2,3] although many of the demonstrated relationships depend upon special birth order constellations involving sex of siblings, sib-age separations, and so on. If birth order is related to achievement motivation, one of the purest testing conditions is a situation where (*a*) a specified number of tasks must be completed in order to achieve course credit, (*b*) credit is all-or-none based on completion of these tasks, (*c*) the onus of motivation and attainment is on the *student,* with minimal contact with a teacher, where grades might be influenced by nonacademic factors, and (*d*) minimal financial cost is involved but financial rewards for completion may be expected. These conditions are met in such correspondence instruction as the United States Armed Forces Institute (USAFI) which requires com-

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pletion of a specified number of lessons (most students pass each lesson, but fewer complete all the necessary lessons to achieve credit). There is no direct teacher-student contact, and tuition fee is nominal, so that motivation to achieve one's "money's worth" is minimal, but completion of the courses is likely to be perceived as contributing to one's career in the Armed Forces or as helping to prepare for a career outside. Thus, achievement motivation must be a strong determining factor in completing the courses. This is reinforced by the fact that for most enrollees there is probably little immediate social influence which supports efforts to complete the course. Completion rates, then, should be significantly related to birth order, with firstborns and only children having higher completion rates than later borns.

This hypothesis was tested with a random sample of 3000 enrollees in USAFI correspondence courses in 1970. One item in a questionnaire distributed to these *S*s requested information on birth order, and 2268 *S*s (women comprised less than 1%) returned usable questionnaires. *S*s were categorized as only child, firstborn, intermediate born, or last born, and as college, high school, or vocational-technical course enrollees. The course completion rates of the *S*s were followed over two years (sufficient time for all *S*s to complete their courses). The rate of course completion was analyzed as a function of the four birth order categories, separately by course category, with use of chi square; the chi-square values were 10.32 (df = 9, NS), 7.27 (df = 9, NS), and 9.65 (df = 9 NS), respectively. Clearly, birth order was not significantly related to academic course persistence as measured by successful course completion, thus not supporting the hypothesis. Another dimension of academic achievement which was examined was level of course enrollment. Within course level, birth order was not significantly related to course completion, but representation between course enrollment was significantly related to birth order. The oldest born were disproportionally underrepresented in high school enrollments and overrepresented in college level enrollments (χ^2 = 19.26, $p < .005$). This suggests qualitatively different educational goals which might possibly reflect higher achievement motivation among only and oldest children, although other interpretations are possible. However, in terms of the direct measure of persistence, the present data provide no evidence that birth order is related to actual persistence in an academic task.

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THE METHODOLOGICAL IMPLICATIONS OF ORIGINAL AND RELAYED MESSAGES IN COMMUNICATION NETWORKS*[1]

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Despite considerable research investigating the impact of various group communication structures on a wide range of dependent variables, a clear distinction between original and relayed messages has not been made.[2,3] Task instructions have not specified whether a member may simply forward another member's message, or if he must recopy it and send his "own" message. Original messages reflect the personal efforts and creativity of an individual group member. Relayed messages, however, refer to the total original messages forwarded from one member to another. Unless the messages permit the identification of the sender and each subsequent relayer, the pattern and amount of communication within the group are distorted. Separate analyses of original and relayed messages have not been conducted in previous studies.

The effects of this message distinction have been demonstrated in a study involving 24 four-member groups of male college students. Leavitt's apparatus for communication networks was used.[4] Each cubicle had a work area, pencils, and a stack of 3 × 5 colored cards. At the bottom of a card were three "Received by _____" statements with blanks in order for *S* to initial it with the first letter of the color of the deck of colored cards in his booth. This enabled *S* to know who received the message before him and *E* to determine the communication pattern. Decentralized (comcon) and centralized (wheel) communication structures were used. A message was defined as a simple sentence or any meaningful part of a complex or com-

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[1] This study was submitted in partial fulfillment of the requirements for a Masters thesis at Texas Christian University.

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pound sentence. A group's task was to reach unanimous agreement regarding which of five solutions for each of two discussion problems was the most appropriate.

Contrary to numerous previous studies,[2,3] centralized and decentralized groups did not differ in the number of original messages produced. These means were 204.5 and 263.5, respectively. Groups in centralized structures, however, relayed significantly fewer messages than decentralized ones ($t = 2.11$, $p < .05$). These means were 123.75 and 236.00, respectively.

The three positions within these two networks also affected the production of original messages. *S*s ($N = 36$) in the peripheral positions of the wheel wrote significantly fewer messages than *S*s ($N = 48$) in the equal positions of the comcon ($\bar{X} = 34.25, 65.86$, respectively; $t = 2.42$, $p < .01$). The production of these *S*s was also significantly less than central *S*s ($\bar{X} = 34.25, 101.75$, respectively; $t = 3.12$, $p < .001$). Central and equal *S*s did not differ in the production of these messages.

As a result of the heterogeneity of variance and the small number of central *S*s, only the messages relayed by peripheral and equal *S*s were compared. A Mann-Whitney test indicated that peripheral *S*s relayed significantly fewer messages than equal *S*s ($\bar{X} = 20.83, 59.00$, respectively, $p < .001$). This procedure of handling messages produced a communication rate higher than the traditional one.[5,6] It probably contributed to the lack of difference among the members' satisfaction or the time needed by the groups to solve the problems.

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AN ANALYSIS OF INTERVENING VARIABLES IN THE ATTITUDE-BEHAVIOR RELATIONSHIP*

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For a number of years, social psychologists have explained empirical discrepancies between individual attitudes and behavior by suggesting that the relationship is a complex one which requires that numerous intervening variables be controlled before a close correlation could be demonstrated. One type of intervening variable, the sphere of behavior to which one predicts on the basis of attitude scale score,[1] has been the topic of much commentary but little actual research. The data reported here focus on an examination of this attitude-action relationship during experimental variations in the behavior sphere to which predictions were made.

S attitudes were measured by means of a six item Thurstone Equal Appearing Intervals[2] scale (parallel forms reliability, Pearson's r = +.82). The attitude items and several camouflage questions were assembled into a questionnaire administered to 94 members of an introductory sociology class. The content area of the scale dealt with student attitudes toward the treatment of people who cheat on examinations. Two weeks after getting the attitude measure, the *E*s returned to the class and solicited volunteers to participate as jurors in a student court to review cheating cases. This "court" was actually contrived by the *E*s in a small groups lab for the purpose of obtaining a measure of *S* behavior. The names of 66 students (38 males and 28 females) were taken, all of whom completed one of the laboratory conditions outlined below.

The basic laboratory task was the same for all *S*s: Based on information given by the *E*, each had to assign a punishment (drawn from a list of five fixed alternatives supplied by the *E*s) to a person who appeared before the

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"jury." Three reporting conditions representing behavioral spheres were created by varying the manner in which information was given to the *S* and the way in which his verdict was reported: (*a*) An individual condition representing the sphere of verbal behavior, where the *S* was given written information about the "offender" and marked his proposed punishment on a verdict form while alone in the laboratory; (*b*) an action-private condition corresponding to the sphere of undisclosed behavior where the *S* heard "evidence" in the presence of other jurors, but still recorded his verdict in writing, leaving the others unaware of his action; (*c*) an action-public condition representing the sphere of public behavior where the *S* not only wrote but verbalized his action, making others aware of his intent.

In general, behavior could be accurately estimated from attitude scales (Gamma = .66, .83 and .48 for verbal, action-private, and action-public spheres, respectively. The high positive relationship between attitudes and behavior remained fairly stable even when controls for behavioral spheres were not made (Gamma = .66 with no controls). Furthermore, the percent of *S*s exhibiting behavior consistent with their attitudes followed the pattern described above (57.7% consistent for verbal; 67.8% consistent for action-private; 48.8% consistent for action-public sphere; 56.0% consistent with no controls). These findings indicate that at least when dealing with attitudes toward cheating, initial *S* attitude tends to predict almost as well alone as when behavioral spheres are controlled. The major implication of the present study is that the relationship between attitudes and behavior, contrary to previous speculation, may be only slightly obscured by intervening variables if care is taken in devising the measuring instrument (the attitude scale), and the logic of the problem is carefully thought through. In the case of the present study of the attitudes of American college students toward cheating on examinations, controls for behavioral sphere only slightly improved the accuracy of attitude scale score as a prediction of behavior.

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AFFECTIVE STYLE AND PERSON PERCEPTION*[1]

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Ehrlich and Lipsey have identified an individual variable of "affective style" in person perception. This style refers to ". . . . an individual's characteristic mode of affective response to people in first encounters" (p. 522).[2] To measure this dimension, they have developed an 11-item Likert type scale. Persons who score high on the scale are called "strong reactors" and those who score low are called "weak reactors." The strong and weak reactors are believed to adopt quite different response strategies in person perception. Surprisingly, however, the experimental evidence for this distinction is rather limited.[3] The purpose of the present experiment was thus to examine the effect of affective style on person perception.

Students (N = 120) from Purdue University were classified into four groups on the basis of their affective style scores: 32-47, 48-56, 57-65, and 66-83. Each group formed impressions of 20 stimulus persons, each based upon one personality trait, and rated their likableness on a 21-point scale. Of the 20 personality traits used 10 were moderately favorable (M = 3.78) and 10 were moderately unfavorable (M = 2.22).[4] The design was a 4 × 2 × 10 factorial, involving four affective style groups, two trait-values, and 10 judgment trials. The factor of trial was included in the design in order to examine the shifts in the judgments of the four affective style groups. The 10 traits were thus counterbalanced over the 10 judgment trials through a 10 × 10 Latin square.

Ratings of the stimulus persons were converted into polarity scores. While the responses to the favorable stimulus persons remained unchanged, responses to the unfavorable ones were reversed: a response of 1 to a negative person became 21 in the polarity transformation.

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Analyses of the data disclosed an effect of affective style on impression polarity. The mean polarity scores for the four groups were 12.86, 13.15, 13.44, and 13.82 in order ($F = 3.31$, $df = 3/116$, $p < .02$), showing a positive relationship between the affectivity of the judges and their evaluative judgments. This finding not only establishes the effect of affective style on interpersonal judgment but also validates the affective style scale itself. Similar to an earlier finding,[1] favorable traits ($M = 14.40$) evoked more polar ratings ($F = 88.79$, $df = 1/116$, $p < .0001$) than the unfavorable ones ($M = 12.24$). Judgment trials ($F < 1$) and affective style by judgment trials ($F = 1.34$), however, had no effect. This implies that the affective styles of the respondents remained quite stable across successive judgments, contrary to the dissipation hypothesis of Ehrlich and Lipsey (p. 538).[2] It should be emphasized that the *S*s of this study rated similar but different persons over the successive judgments. Probably a more powerful test of the dissipation hypothesis would require the *S*s to rate the same stimulus person repeatedly.

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[1] Singh, R., Byrne, D., Gupta, N. C., & Clouser, M. Informational set-size as a determinant of interpersonal judgment in a between-subjects design. *Rep. Res. in Soc. Psychol.*, 1974, 5, 17-26.

The Journal of Social Psychology, 1976, **98**, 291-292.

SOME FACTORS INFLUENCING AGGRESSION IN TWO FIELD EXPERIMENTS*

University of New Mexico

MARY B. HARRIS AND GEORGE C. SAMEROTTE[1]

In a five variable factorial experiment conducted in the summer, 320 men who were standing alone in supermarket checkout lines were exposed to an *E* who cut in line in front of them and unobtrusively coded their verbal and nonverbal aggressive responses. *E* wore either a plain shirt or a shirt with PEACE stenciled on it, carried a transistor radio either turned to a popular music station or turned off, carried powdered milk, beans, and tuna fish (high need items) or potato chips, cookies, and candy (low need items), wore an eyepatch or not, and carried food stamps or not. He also recorded the outdoor temperature every half hour.

A reliability check with a second independent scorer for 25 *S*s led to correlations of .901, .861, and .905 for verbal, nonverbal, and total aggression. However, three five-way analyses of variance for verbal, nonverbal, and total aggression revealed no significant main effects and only three statistically significant but trivial interactions. Chi square analyses also revealed no group differences either in percentages of *S*s who were aggressive or in the percentages of nonaggressive *S*s giving polite responses. Outdoor temperature and amount of total aggression showed a low but statistically significant negative correlation ($r = -.1123$, $df = 318$, $p < .05$).

In order to be positive that these negative results were not due to some artifact of the experimental procedure, a second experiment was conducted, replicating the PEACE and eyepatch variables of the first experiment and the conventional-unconventional dress manipulation found significant in a previous study.[2] Forty male *S*s in lines at booths at a state fair were assigned to the conditions of PEACE or plain shirt, eyepatch or not, and conventional high-status dress or unconventional low status, hippie

* Received in the Editorial Office, Provincetown, Massachusetts, on November 21, 1974.
Copyright, 1976, by The Journal Press.
[1] This research was supported by the University of New Mexico Research Allocations Committee.
[2] Harris, M. B. Mediators between frustration and aggression in a field experiment. *J. Exper. Soc. Psychol.*, 1974, **10**, 561-571.

dress, in a 2 × 2 × 2 factorial design. Procedures and measures were identical to those in the first experiment. Three three-way analyses of variance revealed that those in unconventional attire received more verbal ($F = 4.44$), nonverbal ($F = 5.90$), and total aggression ($F = 5.81$, all $df = 1/32$, all $ps < .05$), as in the previous study.[2] No other effects approached statistical significance.

These results suggest that the paradigm is valid and that, although people indoors are slightly less aggressive when the outdoor temperature is hot and to a person in conventional attire, the word PEACE and the sight of food stamps are cues to neither aggression nor pacifism. Nor was it the case that music increased arousal and thus aggression, that an eyepatch decreased social interactions, or that a person carrying less nutritious items received more aggression.

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CURRENT PROBLEMS AND RESOLUTIONS

Under this heading appear summaries of data which, in 500 words or less, would increase our comprehension of socially compelling problems, hopefully move us somewhat closer to a solution, and clearly show promise of transcending their own origin in the Zeitgeist; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, 98, 293-294.

ATTITUDES OF PETROLEUM COMPANY EXECUTIVES AND COLLEGE STUDENTS TOWARD VARIOUS ASPECTS OF THE "ENERGY CRISIS"*

Iowa State University

PAUL M. MUCHINSKY[1]

The purpose of this study was to ascertain the attitudes of petroleum company executives (the commonly perceived "people in power") and a sample of college students toward various aspects of the energy crisis.

Twenty-six members of the Independent Connecticut Petroleum Association constituted the sample of petroleum company executives. The members of this association are responsible for the distribution of 83% of the fuel oil and 35% of the gasoline in the state of Connecticut; their attitudes are assumed to be representative of petroleum company executives in the greater New England area. Three hundred and twenty-eight undergraduate students at Iowa State University constituted the other sample.

In the Spring of 1974 *S*s responded to a 30 item questionnaire relating to various aspects of the energy crisis, and representing four categories of response: (*a*) causes of the energy crisis; (*b*) solutions to the energy crisis; (*c*) personal involvement; and (*d*) present and future status of the energy crisis. *S*s responded to these items using a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree). *S*s were also asked to rank in importance six major social problems currently facing the United States.

* Received in the Editorial Office, Provincetown, Massachusetts, on October 24, 1974.
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[1] Reprint requests should be sent to the author at the address shown at the end of this article.

A one way analysis of variance was computed for the responses to the questionnaire for the company executives and the students. A Spearman rank-order correlation was computed for the average ranks given to the social problems by the two rating groups.

Significant ($p < .05$ or greater) differences between the attitudes of the petroleum company executives and the college students were found for 13 of the items, involving all four categories of response. In general, the students perceived the major oil companies as being primarily responsible for the energy crisis by withholding petroleum supplies in order to make larger profits and reduce competition. The petroleum company executives tended to perceive the federal government as being primarily responsible for the energy crisis, as the government was perceived as "handcuffing" the petroleum industry through legislation affecting taxation, pricing, and importation of gasoline and oil. Both groups ranked the social problems of economics, corruption in government, and the energy crisis at first, second, and third, respectively, in importance (rho = .848). The major difference ($p < .001$) between the two sets of rankings involved the problem of ecology, which the students ranked fourth in importance, and the executives ranked sixth or last in importance.

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The Journal of Social Psychology, 1976, 98, 295-296.

WOMEN'S LIBERATION: THE DEVELOPMENT OF A LIKERT-TYPE SCALE*[1]

Oregon State University

KNUD S. LARSEN, WILLIAM CARY, BARBARA CHAPLIN, DONNA DEANE, RANDALL GREEN, WILLIAM HYDE, AND KATHIE ZULEGER

The women's liberation movement is a topic of intense current interest. Hymer and Atkins[2] showed that women who identify themselves with the movement differ significantly from those who do not belong, on general descriptions portraying the feminine sex role. Such behavioral differences suggest the need to develop a scale measuring attitudes toward women's liberation.

An original pool of items was narrowed to 100 which met the *a priori* criteria for attitude statements suggested by Edwards.[3] These 100 items were administered with the usual Likert-type response categories to 84 *S*s (43 males and 41 females) selected by random probability from the Oregon State University student directory. Twelve *S*s who scored at the top on the total pool score were compared with the 12 *S*s who scored at the bottom for each item. By means of item analysis, 30 items with discrepancy scores ≥ 18 were selected.

The 30 item Attitude Toward Women's Liberation scale—along with survey items measuring (*a*) sex, (*b*) age, (*c*) class, (*d*) marital status, (*e*) area of study, (*f*) parents' occupations, (*g*) church attendance, (*h*) political preference, (*i*) premarital cohabitation, (*j*) preferred school living group, and (*k*) size of home town—was administered to a total of 144 *S*s in three groups: 30 sorority members, 14 female students attending a women's studies class (a class focussed on women's liberation), and 64 male and female students selected by random probability from the student directory.

The means and the standard deviations of the scale scores for the three

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[1] A copy of the scale may be obtained from the first author at the address shown at the end of this article.

[2] Hymer, S., & Atkins, A. Relationship between attitudes toward women's liberation movement and mode of aggressive expression in women. *Proc. 81st Ann. Conven.*, 1973, 8, 173-174.

[3] Edwards, A. L. Techniques for Attitude Scale Construction. New York: Appleton-Century-Crofts, 1957.

groups were as follows: Sorority ($\bar{x}$ = 72.3, SD = 45.7); Women's Studies ($\bar{x}$ = 38.9, SD = 4.6); random sample ($\bar{x}$ = 64.2, SD = 19.6). The t values between the three groups show a t = 3.56 for the sorority and women's studies groups, t = 2.04 for the sorority and random samples group, and a t = 6.67 for the women's studies and random sample groups. These t values were all significant at the .025 level or better. The results supported our expectations that women belonging to a group (sorority) stressing traditional female values would be less favorable toward women's liberation than a group (women's studies) based on values of women's liberation. The split-half reliability coefficients for the three samples corrected by the Spearman-Brown prophesy formula were Sorority (.67), Women's Studies (.94), and random sample (.93). The results of the relationship between survey items and the scale showed for the random sample ($p \leq .05$) that younger, unmarried, politically liberal students and those who had experienced premarital cohabitation tended to be more positive toward women's liberation.

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AUTHOR INDEX

Alpert, Mark I. 137
Amitsour, Ella 159
Amoroso, Donald M. 235
Amsterdam, James T. 247
Anderson, Norman H. 253
Apsler, Robert 61
Barney, Ralph D. 135
Ben-Tuvia, S. 3
Bootzin, Richard 111
Breen, Lawrence J. 141
Brittain, Clay V. 283
Brown, Marvin 235
Campbell, Arnold J. 89
Cary, William 295
Chaplin, Barbara 295
Chase, Anthony 145
Chu, G. Y. 135
Daniels, Robert E. 133
Deane, Donna 295
Diab, Lutfy N. 9
Doob, Leonard W. 143
Farley, Frank H. 283
Farkas, Arthur J. 253
Finison, Lorenz J. 55
Fisher, Judith L. 183
Fry, P. S. 77
Garrett, James B. 69
Gillespie, David F. 287
Gold, Joel A. 201
Green, Randall 295
Hallaq, John H. 147
Hannah, T. Edward 89
Harris, Mary B. 27, 39, 47, 183, 291
Hendricks, Michael 111
Hyde, William 295
Klingbeil, Dolores R. 47
Knight, E. Leon 137
Lansky, Leonard M. 139
Larsen, Knud S. 295
Levin, Jack 229
Makdah, Salwa J. 9
Mazis, Michael B. 221
Morrison, Thomas L. 103
Muchinsky, Paul M. 293
Munroe, Robert L. 133, 139
Munroe, Ruth H. 133, 139
Neely, William T. 201
Nevo, B. F. 3
Orpen, Christopher 131, 145
Pazzi, Ruth 159
Perry, Raymond P. 121
Perry, Ronald W. 287
Prociuk, Terry J. 141
Roger, D. B. 153
Russ, Raymond C. 213
Samerotte, George C. 39, 291
Schalekamp, E. E. 153
Scott, William C. 285
Shapira, Ariella 19
Sherman, Nancy C. 201
Singh, Ramadhar 289
Sivalingam, G. 165
Smart, Kim L. 283
Smith, Dan M. 221
Stang, David J. 175
Stone, William F. 213
Strauss, Esther H. 229
Thomas M. Duane 103
Wallace, Benjamin 69
Ware, Edward E. 235
Weigel, Russell H. 247
Weller, Leonard 159
Williams, Daniel C. 97
Witt, Robert E. 137
Yukl, Gary A. 269
Zuleger, Kathie 295

TABLE OF CONTENTS

Using information from wrong responses for cross-cultural comparison in Israel 3
By B. F. Nevo and S. Ben-Tuvia

Categorization as a function of attitude and ego-involvement 9
By Salwa J. Makdah and Lutfy N. Diab

Developmental differences in competitive behavior of kibbutz and city children in Israel 19
By Ariella Shapira

Instigators and inhibitors of aggression in a field experiment 27
By Mary B. Harris

Some factors influencing helping: The effects of a handicap, responsibility, and requesting help 39
By George C. Samerotte and Mary B. Harris

The effects of ethnicity of subject and accent and dependency of confederate on aggressiveness and altruism 47
By Mary B. Harris and Dolores R. Klingbeil

The application of McClelland's national development model to recent data 55
By Lorenz J. Finison

Counterattitudinal and proattitudinal advocacy in the forced compliance paradigm: A test of self-perception theory 61
By Robert Apsler

Cognitive consistency, repression-sensitization, and level of moral judgment: Reactions of college students to the Watergate scandal 69
By James B. Garrett and Benjamin Wallace

Children's social sensitivity, altruism, and self-gratification 77
By P. S. Fry

The role of evaluation apprehension in Rokeach's value change paradigm 89
By Arnold J. Campbell and T. Edward Hannah

Effects of aptitude, diligence, and performance on the attribution of motivation and ability 97
By Daniel C. Williams

Participants' perceptions of themselves and leaders in two kinds of group experience 103
By Thomas L. Morrison and M. Duane Thomas

Race and sex as stimuli for negative affect and physical avoidance 111
By Michael Hendricks and Richard Bootzin

The effect of selective attention on communicating personality impressions 121
By Raymond P. Perry

CROSS-CULTURAL NOTES

The effect of perceived instrumentality on the relationship between the valence of pay and job performance 131
By Christopher Orpen

Relation of subsistence economy to a cognitive task in two East African societies ... 133
By Robert L. Munroe, Ruth H. Munroe, and Robert E. Daniels

Differences between Mormon missionaries' perceptions and Chinese natives' expectations in intercultural transactions 135
By Ralph D. Barney and G. Y. Chu

REPLICATIONS AND REFINEMENTS

Variation in group conformity influence 137
By E. Leon Knight, Mark I. Alpert, and Robert E. Witt

A sex difference in shape preference 139
By Ruth H. Munroe, Robert L. Munroe, and Leonard M. Lansky

Machiavellianism and locus of control 141
By Terry J. Prociuk and Lawrence J. Breen

A Cyprus workshop: Intervention methodology during a continuing crisis 143
By Leonard W. Doob

CURRENT PROBLEMS AND RESOLUTIONS

A shopping list experiment of the images of prepared and nonprepared foods 145
By Christopher Orpen and Anthony Chase

The pledge as an instrument of behavioral change 147
By John H. Hallaq

BOOKS RECENTLY RECEIVED 149

Body-buffer zone and violence: A cross-cultural study 153
By D. B. Roger and E. E. Schalekamp

Reactions to absurd humor by Jews of Eastern and Western descent 159
By Leonard Weller, Ella Amitsour, and Ruth Pazzi

The relationship between organizational strategies and personality change among peasants in West Malaysia 165
By G. Sivalingam

Group size effects on conformity 175
By David J. Stang

The effect of three model characteristics on imitation and learning 183
By Judith L. Fisher and Mary B. Harris

Expectancy violations and changes in perceived ability 201
By Joel A. Gold, Nancy C. Sherman, and William T. Neely

Machiavellianism as tough-mindedness 213
By William F. Stone and Raymond C. Russ

Racial self-identification and self-concept by means of unobtrusive measures 221
By Dan M. Smith and Michael B. Mazis

The impact of teacher and student expectancy in a microteaching situation 229
By Esther H. Strauss and Jack Levin

Behavioral effects of viewing pornography 235
By Marvin Brown, Donald M. Amoroso, and Edward E. Ware

The effect of behavior relevant information on attitude-behavior consistency 247
By Russell H. Weigel and James T. Amsterdam

Integration theory and inoculation theory as explanations of the "paper tiger" effect. 253
By Arthur J. Farkas and Norman H. Anderson

Effects of information, payoff magnitude, and favorability of alternative settlement on bargaining outcomes 269
By Gary A. Yukl

REPLICATIONS AND REFINEMENTS

Academic achievement motivation and birth order in adults 283
By Frank H. Farley, Kim L. Smart, and Clay V. Brittain

The methodological implications of original and relayed messages in communication networks 285
By William C. Scott

An analysis of intervening variables in the attitude-behavior relationship 287
By Ronald W. Perry and David F. Gillespie

Affective style and person perception 289
By Ramadhar Singh

Some factors influencing aggression in two field experiments 291
By Mary B. Harris and George C. Samerotte

CURRENT PROBLEMS AND RESOLUTIONS

Attitudes of petroleum company executives and college students toward various aspects of the "energy crisis" 293
By Paul M. Muchinsky

Women's liberation: The development of a Likert-type scale 295
By Knud S. Larsen, William Cary, Barbara Chaplin, Donna Deane, Randall Green, William Hyde, and Kathie Kuleger

BOOKS RECENTLY RECEIVED 297

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Psychosomatic	*Psychosomat.*
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Review	*Rev.*
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31 AUG 1976

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1. Performance tests for children of pre-school age—R. STUTSMAN
2. An experimental study of the eidetic type—H. KLÜVER
3 & 4. A study of natio-racial mental differences—N. D. M. HIRSCH
5. A psychological study of juvenile delinquency by group methods—J. W. BRIDGES AND K. M. B. BRIDGES
6. The influence of puberty praecox upon mental growth—A. GESELL

VOLUME 2—1927

1 & 2. The mind of a gorilla—R. M. YERKES
3. The role of eye-muscles and mouth-muscles in the expression of the emotions—K. DUNLAP
4. Family similarities in mental-test abilities—R. R. WILLOUGHBY
5. Coordination in the locomotion of infants—L. H. BURNSIDE
6. The mind of a gorilla: Part II. Mental development—R. M. YERKES

VOLUME 3—January-June, 1928

1. An experimental study of the olfactory sensitivity of the white rat—J. R. LIGGETT
2. A photographic study of eye movements in reading formulae—M. A. TINKER
3. An experimental study of the East Kentucky mountaineers—N. D. M. HIRSCH
4. Responses of foetal guinea pigs prematurely delivered—G. T. AVERY
5. Objective differentiation between three groups in education (teachers, research workers, and administrators)—M. B. JENSEN
6. The effect of segregation on the sex behavior of the white rat as measured by the obstruction method—M. JENKINS

VOLUME 4—July-December, 1928

1. Observation and training of fundamental habits in young children—E. A. BOTT, W. E. BLATZ, N. CHANT, AND H. BOTT
2 & 3. Determination of a content of the course in literature of a suitable difficulty for junior and senior high school students—M. C. BURCH
4 & 5. Methods for diagnosis and treatment of cases of reading disability—M. MONROE
6. The relative effectiveness of lecture and individual reading as methods of college teaching—E. B. GREENE

VOLUME 5—January-June, 1929

1. The age factor in animal learning: I. Rats in the problem box and the maze—C. P. STONE
2. The effect of delayed incentive on the hunger drive in the white rat—E. L. HAMILTON
3. Which hand is the eye of the blind?—J. M. SMITH
4. The effect of attitude on free word association-time—A. G. EKDAHL
5. The localization of tactual space: A study of average and constant errors under different types of localization—L. E. COLE
6. The effects of gonadectomy, vasotomy, and injections of placental and orchic extracts on the sex behavior of the white rat—H. W. NISSEN

VOLUME 6—July-December, 1929

1. Learning and growth in identical infant twins: An experimental study by the method of co-twin control—A. GESELL AND H. THOMPSON
2. The age factor in animal learning: II. Rats on a multiple light discrimination box and a difficult maze—C. P. STONE
3. The acquisition and interference of motor habits in young children—E. MCGINNIS
4. A vocational and socio-educational survey of graduates and non-graduates of small high schools of New England—A. D. MUELLER
5 & 6. A study of the smiling and laughing of infants in the first year of life—R. W. WASHBURN

VOLUME 7—January-June, 1930

1. Tensions and emotional factors in reaction—E. DUFFY
2. Teacher influence on class achievement: A study of the relationship of estimated teaching ability to pupil achievement in reading and arithmetic—H. R. TAYLOR
3 & 4. A study of the effect of inverted retinal stimulation upon spatially coordinated behavior—P. H. EWERT
5. A study of the mental development of children with lesion in the central nervous system—E. E. LORD
6. An experimental study upon three hundred school children over a six-year period—N. D. M. HIRSCH

VOLUME 8—July-December, 1930

1. The amount and nature of activities of newborn infants under constant external stimulating conditions during the first ten days of life—O. C. IRWIN
2. Race and social differences in performance tests—S. D. PORTEUS, *et al.*
3. Language and growth: The relative efficacy of early and deferred vocabulary training, studied by the method of co-twin control—L. C. STRAYER
4. Eye-movements and optic nystagmus in early infancy—J. M. MCGINNIS
5 & 6. Reactions of kindergarten, first-, and second-grade children to constructive play materials—L. FARWELL

VOLUME 9—January-June, 1931

1 & 2. The status of the first-born with special reference to intelligence—H. H. HSIAO
3 & 4. An experimental study of bright, average, and dull children at the four-year mental level—H. P. DAVIDSON
5. An historical, critical, and experimental study of the Seashore-Kwalwasser test battery—P. R. FARNSWORTH
6. A comparison of difficulty and improvement in the learning of bright and dull children in reproducing a descriptive selection—F. T. WILSON

VOLUME 10—July-December, 1931

1. A comparative study of a group of southern white and negro infants—M. B. MCGRAW
2 & 3. An experimental study of prehension in infants by means of systematic cinema records—H. M. HALVERSON
4. The limits of learning ability in kittens—A. M. SHUEY
5 & 6. The effect of habit interference upon performance in maze learning—O. W. ALM

VOLUME 11—January-June, 1932

1. General factors in transfer of training in the white rat—T. A. JACKSON
2. The effect of color on visual apprehension and perception—M. A. TINKER
3. The reliability and validity of maze experiments with white rats—R. LEEPER
4. A critical study of two lists of best books for children—F. K. SHUTTLEWORTH
5 & 6. Measuring human energy cost in industry: A general guide to the literature—R. M. PAGE

VOLUME 12—July-December, 1932

1. Family resemblances in verbal and numerical abilities—H. D. CARTER
2. The development of fine prehension in infancy—B. M. CASTNER
3 & 4. The growth of adaptive behavior in infants: An experimental study at seven age levels—H. M. RICHARDSON
5 & 6. Differential reactions to taste and temperature stimuli in newborn infants—K. JENSEN

VOLUME 13—January-June, 1933

1. A critique of sublimation in males: A study of forty superior single men—W. S. TAYLOR
2. A study of the nature, measurement, and determination of hand preference—H. L. KOCH, *et al.*
3. The growth and decline of intelligence: A study of a homogeneous group between the ages of ten and sixty—H. E. JONES AND H. S. CONRAD
4. The relation between the complexity of the habit to be acquired and the form of the learning curve in young children—M. L. MATTSON
5. Eating habits in relation to personality development of two- and three-year-old children: A study of sixty-nine children in two nursery schools—A. A. ELIOT
6. Coordinating mechanisms of the spinal cord—O. C. INGEBRITSEN

Genetic Psychology Monographs *(continued)*

VOLUME 14—July-December, 1933

1. Mental growth during the first three years: A developmental study of sixty-one children by repeated tests—N. Bayley
2. A study of triplets: including theories of their possible genetic relationships—F. N. Anderson and N. V. Scheidemann
3. The objective measurement of emotional reactions—H. V. Gaskill
4. Development of behavior in the fetal cat—J. D. Coronios
5. A study of certain language developments of children in grades four to twelve, inclusive—L. L. LaBrant
6. The effect of early and delayed practice on memory and motor performances studied by the method of co-twin control—J. R. Hilgard

VOLUME 15—January-June, 1934

1. Studies in the psychology of tone and music—P. R. Farnsworth
2. Motor learning of children in equilibrium in relation to nutrition—E. L. Beebe
3. Discrimination limens of pattern and size in the goldfish *Carassius auratus*—J. B. Rowley
4. Limits of learning ability in the white rat and the guinea pig—B. F. Riess
5 & 6. The limits of learning ability in rhesus monkeys—H. A. Fjeld

VOLUME 16—July-December, 1934

1. A statistical study of ratings on the California Behavior Inventory for Nursery-School Children—H. S. Conrad
2. An eye-movement study of objective examination questions—A. Frandsen
3. An experimental study of constitutional types—O. Klineberg, S. E. Asch, and H. Block
4. The development of a battery of objective group tests of manual laterality, with the results of their application to 1300 children—W. N. Durost
5 & 6. An experimental study in the prenatal guinea-pig of the origin and development of reflexes and patterns of behavior in relation to the stimulation of specific receptor areas during the period of active fetal life—L. Carmichael

VOLUME 17—January-December, 1935

1. Organization of behavior in the albino rat—R. L. Thorndike
2. Brightness discrimination in the rhesus monkey—M. P. Crawford
3. The limits of learning ability in cebus monkeys—A. M. Koch
4. Nature-nurture and intelligence—A. M. Leahy
5. On intelligence of epileptic children—E. B. Sullivan and L. Gahagan
6. A study of the play of children of preschool age by an unobserved observer—D. L. Cockrell

VOLUME 18—January-December, 1936

1. Sex differences in variational tendency—Q. McNemar and L. M. Terman
2. The process of learning to dress among nursery-school children—C. B. Key, M. R. White, M. P. Honzik, A. B. Heiney, and D. Erwin
3. A study of the present social status of a group of adults, who, when they were in elementary schools, were classified as mentally deficient—W. R. Baller
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5 & 6. Studies in aggressiveness—L. Bender, S. Keiser, and P. Schilder

VOLUME 19—January-December, 1937

1. Psychological bases of self-mutilation—C. Dabrowski
   Masculine temperament and secondary sex characteristics: A study of the relationship between psychological and physical measures of masculinity—H. Gilkinson
2. A psychological study of forty unmarried mothers—R. D. Nottingham
   Behavior problems in the children of psychotic and criminal parents—L. Bender
3. Domination and integration in the social behavior of young children in an experimental play situation—H. H. Anderson
4. The sequential patterning of prone progression in the human infant—L. B. Ames

VOLUME 20—January-December, 1938

1. The relationship between characteristics of personality and physique in adolescents—P. S. de Q. Cabot
2. Behavior problems of elementary school children: A descriptive and comparative study—I. Y. Masten
   Graphic representation of a man by four-year-old children in nine prescribed drawing situations—P. F. Gridley
3. Differences between two groups of adult criminals—R. S. Tolman
4. A comparative study by means of the Rorschach method of personality development in twenty pairs of identical twins—E. Troup
   Individual differences in the facial expressive behavior of preschool children: A study by the time-sampling method—C. Swan

VOLUME 21—January-December, 1939

An experimental analysis of "level of aspiration"—R. Gould
Some light on the problem of bilingualism as found from a study of the progress in mastery of English among pre-school children of non-American ancestry in Hawaii—M. E. Smith
Domination and social integration in the behavior of kindergarten children and teachers—H. H. Anderson
The capacity of the rhesus and cebus monkey and the gibbon to acquire differential response to complex visual stimuli—W. E. Galt
The social-sex development of children—E. H. Campbell

VOLUME 22—January-December, 1940

Measuring human relations: An introduction to the study of the interaction of individuals—E. D. Chapple
Aggressive behavior in young children and children's attitudes toward aggression—M. D. Fite
Student attitudes toward religion—E. Nelson
The prediction of the outcome-on-furlough of dementia praecox patients—J. S. Jacob
Significant characteristics of preschool children as located in the Conrad inventory—K. H. Read
Learning by children at noon-meal in a nursery school: Ten "good" eaters and ten "poor" eaters—J. B. McCay, E. B. Waring, and P. J. Kruse
Studies in the interpretation of play: I. Clinical observation of play disruption in young children—E. H. Erikson

VOLUME 23—January-June, 1941

An analysis of certain variables in a developmental study of language—F. M. Young
Infant development under conditions of restricted practice and of minimum social stimulation—W. Dennis
An analysis of the mental factors of various age groups from nine to sixty—B. Balinsky
Factors influencing performance on group and individual tests of intelligence: I. Rate of work—M. W. Bennett
Individual differences in apperceptive reaction: A study of the response of preschool children to pictures—E. W. Amen

VOLUME 24—July-December, 1941

Twins *T* and *C* from infancy to adolescence: A biogenetic study of individual differences by the method of co-twin control—A. Gesell and H. Thompson
Finger nail-biting: Its incipiency, incidence, and amelioration—A. L. Billig
An experimental study of the factors of maturation and practice in the behavioral development of the embryo of the frog, *Rana pipiens*—A. Fromme
The Fels child behavior scales—T. W. Richards and M. P. Simons
Measurement of the size of general English vocabulary through the elementary grades and high school—M. K. Smith
Stereotypes in the field of musical eminence—P. R. Farnsworth

VOLUME 25—January-June, 1942

A study of factors determining family size in a selected professional group—J. C. Flanagan
A genetic study of geometrical-optical illusions—A. Walters
Interpretation of behavior-ratings in terms of favorable and unfavorable deviations: A study of scores from the Read-Conrad Behavior Inventory—K. H. Read and H. S. Conrad
Are there any innate behavior tendencies?—J. B. Schoolland
An investigation of the intelligibility of the speech of the deaf—C. V. Hudgins and F. C. Numbers

Genetic Psychology Monographs *(continued)*

VOLUME 26—July-December, 1942

1. The critical frequency limen for visual flicker in children between the ages of 6 and 18—V. L. MILLER
   Some factors determining handedness in the white rat—K. L. WENTWORTH
2. Motivation and behavior—E. FRENKEL-BRUNSWIK

VOLUME 27—January-June, 1943

1. Comparison of children's personality traits, attitudes, and intelligence with parental occupation—N. R. MADDY
2. A comparative study of mental functioning patterns of problem and non-problem children seven, eight, and nine years of age—M. L. PIGNATELLI

VOLUME 28—July-December, 1943

1. Separation anxiety in young children: A study of hospital cases—H. EDELSTON
2. Correlates of vocational preferences—W. A. BRADLEY, JR.

VOLUME 29—January-June, 1944

1. Mental changes after bilateral prefrontal lobotomy—S. D. PORTEUS AND R. D. KEPNER
2. A twin-controlled experiment on the learning of auxiliary languages—B. PRICE, W. J. KOSTIR, AND W. M. TAYLOR

VOLUME 30—July-December, 1944

1. A method of administering and evaluating the thematic appreciation test in group situations—R. M. CLARK
2. A study of anxiety reactions in young children by means of a projective technique—R. TEMPLE AND E. W. AMEN

VOLUME 31—January-June, 1945

1. The evolution of intelligent behavior in rhesus monkeys—B. WEINSTEIN
2. Perceptual behavior of brain-injured, mentally defective children: An experimental study by means of the Rorschach technique—H. WERNER

VOLUME 32—July-December, 1945

1. A clinical study of sentiments: I.—H. A. MURRAY AND C. D. MORGAN
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VOLUME 33—January-June, 1946

1. Interpretation of spontaneous drawings and paintings—T. S. WAEHNER
   Preferences for sex symbols and their personality correlates—K. FRANCK
2. Outstanding traits: In a selected college group, with some reference to career interests and war records—F. L. WELLS AND W. L. WOODS

VOLUME 34—July-December, 1946

1. The relation of emotional adjustment to intellectual function—J. L. DESPERT AND H. O. PIERCE
   The smiling response: A contribution to the ontogenesis of social relations—R. A. SPITZ
2. Finger-painting and personality diagnosis—P. J. NAPOLI

VOLUME 35—January-June, 1947

1. The thematic apperception technique in the study of culture-personality relations—W. E. HENRY
2. A continuation study of anxiety reactions in young children by means of a projective technique—M. DORKEY AND E. W. AMEN
   A study of the vocational interest trends of secondary school and college women—A. M. CAWLEY

VOLUME 36—July-December, 1947

1. Maze test validation and psychosurgery—S. D. PORTEUS AND H. N. PETERS
2. The diagnostic implications of Rorschach's test in case studies of mental defectives—I. JOLLES

VOLUME 37—January-June, 1948

1. The radio day time serial: A symbolic analysis—W. L. WARNER AND W. E. HENRY
   The relation of personality characteristics and response to verbal approval in a learning task—G. L. GRACE
2. The mechanism of vision: XVIII. Effects of destroying the visual "associative areas" of the monkey—K. S. LASHLEY
   A study of the relationship between handwriting and personality variables—P. CASTELNUOVA-TEDESCO

VOLUME 38—July-December, 1948

1. Modern language learning: The intensive course as sponsored by the United States Army, and implications for the undergraduate course of study—M. LIND
   Conflict: A study of some interactions between appetite and aversion in the white rat—M. A. TOLCOTT
2. Schizophrenia and the *MAPS* test: A study of certain formal psycho-social aspects of fantasy production in schizophrenia as revealed by performance on the Make a Picture Story (*MAPS*) Test—E. S. SHNEIDMAN
   A study of the transmission of authority patterns in the family—H. L. INGERSOLL

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VOLUME 42—July-December, 1950

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VOLUME 44—July-December, 1951

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VOLUME 45—January-June, 1952

1. Japanese-American personality and acculturation—W. CAUDILL
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Genetic Psychology Monographs *(continued)*

VOLUME 46—July-December, 1952

The relationship of social status, intelligence, and sex of ten- and eleven-year-old children to an awareness of poverty—F. J. ESTVAN

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Some personality correlates of sex, sibling position, and sex of sibling among five- and six-year-old children—H. L. KOCH

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Genetic Psychology Monographs *(continued)*

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VOLUME 61—January-June, 1960

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VOLUME 66—July-December, 1962

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VOLUME 67—January-June, 1963

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VOLUME 68—July-December, 1963

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(Manuscripts are printed in the order of final acceptance)

Personality differences between young New Zealanders and Americans 3
By Graham M. Vaughan and Raymond B. Cattell

Occupational stereotyping in American and Greek cultures 13
By Maria X. Malikiosi and Richard M. Ryckman

Cultural variations in personal space 21
By Jacob Lomranz

Imitation of a helpful model: The effect of level of emergency 29
By Linda Zener Solomon and Philip Grota

An unobtrusive study of reactions to national stereotypes in four European countries 37
By Joseph P. Forgas

Effects of type of recommendation, attire, and perceived expertise on parental compliance 43
By Theodore Wasserman and Howard Kassinove

The effect of severity of exertion on liking for a cause 51
By John C. Barefoot, Lloyd H. Strickland, Paul Guild, and Allen Turnbull

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Reactions to humor as a function of reference group and dogmatism 57
By D'Rinda Jo Smith and Hanna Levenson

Dissonance from counterattitudinal advocacy to liked and disliked targets 63
By Judith Weiner Regan and Patricia Dekar

Young Arabs in Israel: Some aspects of a conflicted social identity 75
By John E. Hofman and Nadim Rouhana

Approval seeking, situational pressures, and the willingness to administer shock to a victim 87
By Knud S. Larsen, Larry Lancaster, William Lesh, John Redding, Cheryl White, and Kurt S. Larsen

Subjective reactions to sex-linked language 97
By Carole Edelsky

Retaliation and the attribution of responsibility for unfavorable evaluations of performance 105
By Hugh C. Foot

Graffiti in the 1970's 115
By Elizabeth Wales and Barbara Brewer

The selection and evaluation of interpersonal distances as a function of linguistic styles 125
Walter Leginski and Richard R. Izzett

CROSS-CULTURAL NOTES

Changes in Navajo responses to the Draw-A-Man Test 139
By Steven Thurber

Statistical variance as an index of cultural differences 141
By Jerry Johnson and Ronald Gallimore

REPLICATIONS AND REFINEMENTS

Eidetic imagery versus language skills 143
By Murray W. Cohen

Initial position, ratio of arguments, and individual shifts in decision 145
By Donald G. Fischer, Kenneth McDowell, and Fabian Boulanger

Internal-external control and attribution of responsibility for a positive accident 147
By Ruth Hyland and Merri-Ann Cooper

Ethnicity of subject and test administrator: Their effect on self-esteem 149
By Judith Little and Albert Ramirez

Silence and role uncertainty 151
By Peter Bick and Kate Loewenthal

BOOKS RECENTLY RECEIVED 153

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PERSONALITY DIFFERENCES BETWEEN YOUNG NEW ZEALANDERS AND AMERICANS*

University of Auckland, New Zealand; and University of Illinois

GRAHAM M. VAUGHAN AND RAYMOND B. CATTELL

SUMMARY

While the pattern of basic personality dimensions which has been established in factor-analytic research is reasonably consistent, factor levels and modes of expression are often not. In all, 597 high school children in New Zealand completed Forms A and B of the Sixteen Personality Factor Questionnaire. When their scores were compared with 1859 American high school children who had responded to Form A and another 1656 who had taken Form B of the same test, some significant differences were found. In the broadest terms, New Zealanders scored higher on a narrow measure of verbal intelligence and were relatively more independent. Americans were found to be more extraverted.

A. INTRODUCTION

A representative psychological comparison of two cultures would involve an examination of the social structures of each, as well as relating the modal personality characteristics of the respective populations. The domain of this paper is confined to this second area, and even in this such a comparison involves two aspects: first, the extent to which the personality structures or patterns of unitary traits are alike; second, any remaining differences of consequence between the two.

Cattell and his colleagues have approached both questions by factor analyses of questionnaire data and of objective tests (miniature, situational behavioral data). The results of several studies of the former kind have already been summarized, while a substantial example of the latter was a comparative study of personality dimensions in American, Austrian, and Japanese samples (7). An overview shows that the same factor structures

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from the 16-PF Questionnaire (primary dimensions of intelligence, ego strength, surgency, radicalism-conservatism, ergic tension, etc.) stand firm across American, British, French, German, Italian, Japanese, and Indian populations. Although there are interesting differences in pattern of *expression*, replications of the basic dimensions suggest that people are much the same everywhere. The dimension of Dominance (factor E), for example, is expressed in Italy in a hierarchical way, whereas in America it tends to cut across the socioeconomic structure to be expressed in terms of individual enterprise and adventure.

When one comes to differences of level, however, a new difficulty arises. Since the variables, such as the questionnaire items, may not mean quite the same thing or not be quite accurately translated across two cultures, and since they would also have slightly different loadings on the factors to be estimated, the estimations of the factor scores cannot be exactly comparable. It is for this reason that some writers are concerned with the scientific standing of the enormous flood of recent cross-cultural comparisons on attitudinal, ability, and personality measures. It is time for psychologists to study more carefully the appropriate and necessary conceptual or technical conditions before drawing conclusions about cross-cultural effects in their research.

Cattell (2) has already suggested one kind of approach which allows valid inferences to be drawn from a comparison across cultures of factor scores. The factorial technique involved, however, is complex. In most research some kind of compromise must be reached. When psychological tests are being used in more than one culture, minimal requirements are that the test items be accurately translated, and that the item population for a given factor be sufficiently sampled and stratified. With these points in mind the resulting comparison could be an acceptable approximation.

The present study is a contribution to transcultural research in personality where the comparison is approximate. That is to say, it has no error in translation, since the same language is involved (idiomatic differences excepted) in the two countries, and the factor scores are based on a stratified sample of behavioral situations in the construction of the tests. Importantly, too, the factor structure has been shown to be comparable in the two countries (4). Also a serious attempt has been made to ensure comparability of the samples by selecting children in their last year of high school, drawn right across both populations. The study has the further value, in regard to ultimate integration of cross-cultural research, of being

couched in the same framework of 16 primary personality dimensions used previously in obtaining data in several other countries.

B. Method

Forms A and B of the Sixteen Personality Factor Questionnaire were administered in the course of two class periods, separated by about a day in most instances. The American samples are very large, constituting some of the age-level standardization groups for Forms A and B. There were 882 and 582 boys, and 977 and 674 girls, respectively, for each form of the test. The New Zealand samples were 300 boys and 297 girls for both forms, chosen from high schools scattered through the four largest cities. The mean age in all samples was approximately 17 years.

C. Results on Primary Dimensions

For ease of interpretation, all results have been converted to mean sten scores. The latter are distributed over 10 equal-interval standard score points, assuming a normal distribution. The American samples provided a baseline in this exercise, so that on each of the 16 primary factors the American mean is defined as 5.5 on the 10-point sten scale. Consequently, in the results given in Table 1, only the *comparative* sten scores of the New Zealand samples need be shown. For children from both countries, the standard deviation is fixed at 2.0.

Additionally, the sten means for the New Zealand groups are given on both forms of the personality test. While greater reliability of a given scale score would have been achieved by pooling responses to Forms A and B, possible variations in idiom referred to earlier suggested the separation adopted. If in either scale there was an inadequate sampling of the domain of idiomatic expression of a given primary trait (factor) for a given culture, then we might expect different results across scales for that culture. The proof, then, that a difference holds for the essential trait, and not for some culturally biassed expression of it, resides in the difference being consistent over the two forms of the test.

In dealing with the primary scales one may wonder whether to treat them as correlated or uncorrelated variables. Although the correlations among the primary source are generally quite small, they are nonetheless significant. Cattell (4) has attributed the instances of overlap to a smaller group of second-order factors which themselves, at simple structure, are also correlated. We can, therefore, distinguish statements at both levels.

At the primary level we have examined by critical ratios each of the differences between young New Zealanders and Americans on the 16 primary traits. The results in Table 1 are appropriately asterisked for level of significance.

In a number of instances no cross-national differences can be observed, while in others a difference which shows up on one form is not substantiated on the other. In order to emphasize only the most reliable effects, therefore, the data in Table 1 have been reorganized and summarized in Table 2. Included here are those differences which are clearly in the same direction on both forms of the questionnaire. The table also indicates which differences are consistent for both sexes as distinct from those which are found only in one sex.

Despite the fairly rigid statistical criteria adopted, a number of significant cross-national differences in the primary expression of personality can be noted in Table 2. In both sexes, Americans were significantly higher than their counterparts on Affectothymia ("warm-heartedness," factor A), Superego Strength (G), and Parmia ("toughness," H); while the New

TABLE 1
MEAN PRIMARY 16-PF STEN SCORES OF YOUNG NEW ZEALANDERS

Factor	High score description	Boys		Girls	
		Form A	Form B	Form A	Form B
A	Affectothymia	5.32	5.17*	4.66**	5.05**
B	Intelligence	7.25*	7.33*	6.78**	7.41**
C	Ego Strength	5.44	5.58	5.33	5.56
E	Dominance	5.48	5.50	5.40	5.73
F	Surgency	5.07**	5.26	5.15**	5.61
G	Superego Strength	5.07**	4.56**	5.07**	4.76**
H	Parmia	5.02**	4.77**	5.09**	5.14**
I	Premsia	5.37	4.26**	5.79**	4.88**
L	Protension	5.62	5.81*	6.33**	5.83*
M	Autia	5.46	6.03**	5.60	6.18**
N	Shrewdness	5.97**	5.49	6.20**	5.01**
O	Guilt Proneness	5.62	5.40	5.90**	5.47
Q_1	Radicalism	6.20**	6.08**	6.43**	6.85**
Q_2	Self-Sufficiency	6.68**	6.10**	6.29**	5.52
Q_3	Self-Sentiment	5.71	6.11**	5.33	5.65
Q_4	Ergic Tension	5.33	5.22*	5.37	5.42

Note: Sten scores are normally distributed about a mean of 5.5 with a standard deviation of 2.0. In this instance, the baseline groups are American. The patterns of significance in the above table are also reflected in the raw means and standard deviations. These are available from the senior author on request.

* $p < .05$ (where the critical upper and lower points are 5.24 and 5.76, respectively).
** $p < .01$ (where the critical points are 5.15 and 5.85).

TABLE 2
SIGNIFICANT PRIMARY FACTOR DIFFERENCES BETWEEN YOUNG AMERICANS AND YOUNG NEW ZEALANDERS

Trend	Americans	New Zealanders
Both sexes	A+**(Affectothymia) G+***(Superego Strength)	B+***(Intelligence) L+**(Protension)
	H+***(Parmia)	M+*(Autia) Q_1+***(Radicalism) Q_2+**(Self-Sufficiency)
Males only	F+*(Surgency) I+*(Premsia)	N+*(Shrewdness) Q_3+**(Self-Sentiment)

Note: The plus sign in each case indicates that the factor score is higher in the designated group.
* Significant on one form only.
** Significant on one form, consistent on other.
*** Significant on both forms.

Zealanders score higher on Intelligence (B), Protension ("suspiciousness," L), Autia ("impracticality," M), Q_1 (Radicalism), and Q_2 (Self-Sufficiency). Several other effects seem to mark out a cross-national difference among males only.

D. RESULTS ON SECONDARY DIMENSIONS

The relation of second-order factors to their constituent primaries is still a matter for theoretical conjecture. Eysenck (8), for example, regards Extraversion as a more fundamental influence than the primary factors (especially A, F, H, and Q_2–), arguing that such constructs are expressions of it. On the other hand, Cattell's (3) spiral theory supposes that an interaction of the more fundamental primary factors produces an organization which makes up the Extraversion or Exvia factor. This paper does not provide the context for a considered debate on the relative importance of primary and secondary factors, so we shall take a noncommittal position and present the evidence for both.

At present, some eight second-order factors can be estimated from the 16 primaries. Results on the first four of these eight factors are included here. Second-order factors V and VI seem to change their loading patterns to an extent across studies, and require further research; while VII and VIII largely reflect the action of primaries B (Intelligence) and G (Superego Strength), respectively, and will be dealt with at these levels. Calculating *individual* second-order scores can be a laborious process, even more so when large numbers of *S*s are involved. In the present study unbiassed

group mean estimates were obtained on each second-order factor as follows: the mean sten scores for New Zealanders on the 16 primaries (averaged across the individual form means of Table 1) were used to estimate mean second-order sten scores, using the appropriate weightings provided in the 16-PF Handbook (6). As with results previously shown in Table 1, the derived scores can be compared with the American results by considering the latter as baseline with a mean of 5.5 on a 10-point scale. For both national groups the standard deviation is fixed once more at 2.0. The outcome is shown in Table 3.

It can be seen that Americans were clearly higher on Exvia (I) and New Zealanders on Independence (IV). There is one sex-linked difference in that male New Zealanders score higher than their counterparts on Cortertia (III).

E. Discussion

Looking at the broader trends in the second-order analysis first, we can see a clear effect of young Americans being more extraverted than New Zealanders. New Zealand is, of course, a British country. In terms of history, constitution, language structure and expression, sport, food habits—in fact, in its total social fabric—it lies closer to the British than to the American way. The international stereotype of British "reserve" is, therefore, probably being reflected in the New Zealand results. The New Zealand profile in this instance can be compared with that noted among British samples by Saville (13). An earlier study by Cattell and Warburton (5) showed that Americans were more extraverted than British when comparing samples in Chicago and Manchester. Furthermore, demographic and epidemiological measures of the social expression of Extraversion which Lynn (10, 11) has discussed (such as rates of suicide, alcoholism,

TABLE 3
Mean Second-Order 16-PF Sten Scores of New Zealand High School Children

Factor	High score description	Boys	Girls
I	Exvia	4.92**	5.01*
II	Anxiety	5.26	5.50
III	Cortertia	5.95**	5.42
IV	Independence	6.11**	5.95*

Note: As in Table 1, the baseline groups are American.
* $p < .05$ (with critical points as in Table 1).
** $p < .01$ (with critical points as in Table 1).

divorce, accidents) point in the same direction. The real point of contrast, however, may be Americans *versus* most other countries, since results such as Lynn's and others (7) show Extraversion to be more pronounced amongst the former than in Irish, Norwegians, Dutch, Japanese, or Austrians. In this case, the finding that New Zealanders are less extraverted may simply be a further example of a general observation that Americans are among the world's most extraverted peoples.

Also consistent across sex is the finding of higher second-order Independence in young New Zealanders. Many speculations on this effect are possible. A seemingly contrary note was sounded by Ausubel (1) who, on the basis of interview methods which were much criticized by New Zealand scholars, branded the country as authoritarian and conformist in nature. In the present study, however, we have an example of a direct comparison between young people in two countries by means of a consistent and relatively objective test instrument. In fact, the finding that New Zealanders emerge as relatively independent is not particularly surprising, when we bear in mind that their country is still in a stage of urban development, encouraging toward immigration (up to the early 1970s), and generally not unlike the America of the earlier part of this century. In this context, Independence is perhaps one personality expression of a "pioneering" stage in social evolution. It is consistent with the New Zealander's often popularly expressed view of himself as a self-reliant fellow. If our social-evolutionary hypothesis is even partly correct, we would predict a decline in this effect within a generation or two.

At the primary factor level, we can note additional findings which were consistent across sex. The most substantial of these is a higher Intelligence score among New Zealanders. In the present period of sensitivity about the ascription of genetic intelligence differences to different groups of people (especially racially defined ones), we hesitate to suggest that the effect is other than an environmental one. Even so, genetic differences at the group level resulting from natural selection and migration differences have to be considered (cf. 9). There is, therefore, just the possibility that a good number of intelligent people decided to leave Britain to reside in a country which is physically attractive (according to tourist brochures) and socially egalitarian. Perhaps more plausible is the point that immigrants to New Zealand in the period immediately following the Second World War have been selected primarily from professional, managerial, and technically skilled occupational groups. In the authors' opinion, however, the biggest single contributing factor to the present finding is the scholastic structure of

New Zealand. The assertion of academic attainment has been a feature of the New Zealand high school system for several generations. National competitive examinations begin at the age of 15 years, with outcomes that are made known in the country's newspapers. In contrast to the United States, there is probably also a smaller variation in academic performance across schools. Since the B scale in the 16-PF Questionnaire is not a culture-fair one, involving as it does some verbal skill, it is highly probable that environmentally enhanced verbal ability is found in the New Zealand high school culture when compared with the American one.

The remaining first-order effects are either covered by interpretations of second-order differences, or else are so specific that we should be cautious in endowing them with an excess of meaning. The results for Affectothymia (factor A), Surgency (F), Parmia (H), and Q_2 (Self-Sufficiency) all contribute clearly to the second-order finding that Americans are more exviant. Likewise, the greater Independence found in New Zealanders is picked up by the primary factor differences on L (Protension), M (Autia), Q_1 (Radicalism), and on Q_2 once more.

We can note that there is higher SuperEgo Strength (G) in the Americans, which might indicate that the Puritan Ethic is somewhat stronger than in New Zealand. However, this factor is substantially correlated with another primary, Controlled Self-Sentiment (Q_3), on which New Zealand males score higher.

A sex-specific effect which shows up at both levels of analysis is that of lower Cortertia among American males. This is indicated on second-order Factor III, and on the contributing primary Premsia (I). The nature of Cortertia shows up in terms of a relatively higher level of cognitive activity when compared with emotional activity. We could speculate that this corresponds to an earlier imposition of adult standards of behavior upon New Zealand children. We can note again that Ausubel (1) has argued, albeit at a superficial level, that there is higher authoritarianism in New Zealand society. More recently, Ritchie and Ritchie (12) have suggested the New Zealand mothers are concerned with inducing high levels of conforming behavior in their children. If this line of inference is correct, we are left with the interesting hypothesis arising from the present findings that the effect is specific to a comparison between New Zealand and American males.

The finding that New Zealand males are higher on Shrewdness (N) is reliable on one form only, and we prefer to leave this as an isolated effect of uncertain reliability.

F. Conclusions

The humanist claim that we are all one people is reasonable when we consider the growing body of evidence from the cross-cultural use of the Sixteen Personality Factor Questionnaire. The factor pattern across cultures for this test is remarkably consistent. Despite this, cultural variations in factor level and mode of expression do occur, points which have been made by social anthropologists in their own way. Even in Western cultures subtle differences emerge. The present study suggests, in a comparison of young New Zealanders and Americans, that the former have an edge in verbally-expressed intelligence, and are more independent; whereas the latter are generally more extraverted. Suggestions of other differences seem to be limited to males and call for corroborative evidence.

We hope that other researchers will be concerned with features of the social structure in these countries which can be linked to the mode by which these national differences are manifested. From a world view, there is no good reason for suppressing data which point to such phenomena. Rather, special characteristics of one's own group and of other groups need to be understood and digested in an age of ever-increasing contact between peoples.

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OCCUPATIONAL STEREOTYPING IN AMERICAN AND GREEK CULTURES*

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SUMMARY

This investigation was designed to extend the findings of previous research on occupational stereotyping cross-culturally by assessing the attitudes of segments of the American and the Greek publics toward the altruism, competence, power, status, and truthfulness of the members of 20 selected occupations. It was hypothesized that members of the two cultures would show high agreement in their ratings of the various occupations. Specifically, it was predicted that both Americans and Greeks would rate professionals most favorably, followed by businessmen and clerks, with blue-collar workers being rated most negatively. To test these contentions, four samples of men and women *S*s, two from the American ($N=368$) and two from the Greek cultures ($N=258$), were recruited for the study and asked to fill out an Attitudes Toward Occupations Questionnaire. The results supported the predictions. The Americans and the Greeks did differ in their ratings, however, in several interesting respects. The Americans rated members of the health profession more favorably than did the Greeks, while the Greeks tended to perceive members of the teaching profession more positively than did the Americans.

A. INTRODUCTION

Although the literature lists a substantial number of studies on ethnic stereotyping (1), relatively few have been conducted on occupational stereotyping. A study by Counts (2) is generally regarded as the first major

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[1] This article is based partially upon a Master's thesis conducted by the senior author under the direction of the junior author.
[2] Requests for reprints should be sent to the junior author at the address shown at the end of the article.

attempt to measure the prestige of various occupations. Since this pioneering work in 1925, approximately 80 studies have been published.[3] Most of them were conducted in the '50s and '60s, and virtually all of them deal with the social prestige of different occupations in different cultures. The results overwhelmingly indicate a high consensus on the relative prestige of occupations, irrespective of differences in the age, sex, educational level, socioeconomic status, or cultural backgrounds of the raters. Professional groups are rated on top of the prestige hierarchy, followed by white-collar workers in business and industry, and, finally, by semiskilled and unskilled laborers.

It was only recently that Rotter and Stein (3) have attempted to assess people's ratings of occupations on dimensions other than social status. They obtained ratings of 20 selected occupations on truthfulness, competence, and altruism from groups of American adults and college students. To their surprise, the *S*s showed very high levels of agreement in their ratings of members of these occupations, despite differences between the samples in age, occupation, educational level, and geographical location of residence. Comparisons between the samples in their ratings on the three dimensions yielded correlation coefficients that ranged from .92 to .97. Generally speaking, their data indicated that professionals like college professors, physicians, psychiatrists, psychologists, and judges were rated high on altruism, competence, and truthfulness, while members of other occupations like politicians, labor union officials, business executives, and various media personnel were rated poorly on the same three variables. Their *post hoc* interpretation of these findings was that members of these latter occupations were rated so poorly because they are perceived by members of society as powerful and, hence, are distrusted, while the professionals were seen in favorable terms because they have little power and are, therefore, not threatening to people.

Shortly afterwards, Ryckman and Sherman (4) argued that since the *S*s in Rotter and Stein's study were white, middle-class people, perhaps the rating similarities were not so surprising: members of the same social class could be expected to be relatively homogeneous in their attitudes. As a consequence, they proceeded to obtain ratings on these same dimensions from a sample of blue-collar workers in Maine in order to test the generality of Rotter and Stein's findings. In addition, they asked the workers to rate the members of the occupations in terms of their perceived power as a

[3] A bibliography on occupational stereotyping can be obtained by writing to the junior author.

means of testing the validity of Rotter and Stein's contention that members of powerful groups are rated more poorly than members of less powerful groups. A comparison sample of American college students also rated these occupations on the same dimensions and also on status.

The results showed high agreement between the working-class ratings and the ratings of Rotter and Stein's middle-class *S*s on the dimensions of truthfulness, competence, and altruism. Contrary to Rotter and Stein's assertion, however, people in occupations of high perceived power were not uniformly rated negatively. For example, professionals, such as physicians, clergymen, and college professors, were reported to have as much or more power than politicians, labor union officials, and people in the media, and yet were rated in highly favorable terms.

The present investigation was an initial attempt to extend the generality of the findings of the previous two studies cross-culturally by measuring the attitudes of segments of the American and Greek publics toward the altruism, competence, power, status, and truthfulness of the members of selected occupations. Strong cross-cultural agreement in their ratings of the various occupations was expected on the basis of the previously reported research findings.

B. Method

1. *Subjects*

Four samples of *S*s, two from the American and two from the Greek cultures, participated in the study. The data for the American samples were obtained over a two year period, 1971–72, while the data for the Greek samples were collected during 1973, approximately one year before the overthrow of the military dictatorship and the restoration of civilian rule. The American adult sample included 268 people, of whom 219 were men and 49 women. Their ages ranged from 21 to 77, with a mean age of 45. The Greek adult sample included 196 members of different occupations, 125 of whom were men and 71 women. Their ages ranged from 20 to 72, with a mean age of 39.

The American student sample included 100 members of an introductory psychology class at the University of Maine, 58 of whom were men and 42 women. Their ages ranged from 19 to 27, with a mean age of 20. The Greek student sample consisted of 62 persons of the School of Philosophy at the University of Athens in Greece, of whom eight were men and 54 were women. Their ages ranged from 20 to 26, with a mean age of 22.

2. *Instrument*

All *S*s completed an Attitudes Toward Occupations Questionnaire.[4] It included 20 different occupations to be rated on the dimensions of altruism, job competence, power, social status, and truthfulness. The list of occupations was derived primarily from one used by Rotter and Stein with certain changes in occupational titles and some replacements of certain occupations being made to make the list suitable to both American and Greek cultures. The questionnaire booklet consisted of five sheets, with a single dimension and the various occupations listed on separate pages. Both the dimensions and the occupations were randomized within each booklet. Ratings could vary from 1 to 4, with 1 indicating that the *S*s perceived members of the occupations as highly truthful, altruistic, competent, and powerful, and as having high social status. Ratings of 4 indicated that members of the occupations were perceived as being highly dishonest, selfish, incompetent, and as having little power and status. Specific instructions can be found in the Rotter and Stein and Ryckman and Sherman studies.

3. *Procedure*

The questionnaires assessing attitudes toward occupations were mailed to 125 members of each of the 20 different occupations listed on the questionnaire. Members of these occupations were obtained from a variety of sources, such as the American Psychological Association Biographical Directory 1970, the Martindale-Hubbell Law Directory 1972, the American Dental Directory 1970, the Directory of Medical Specialists 1968–69, the American Architects Directory, the Directory of American Scholars, the 1969 American Medical Directory, as well as from the advertising pages of various city telephone books. These cities included Boston, Chicago, New York City, Cleveland, Newark, Nashua (New Hampshire), San Francisco, and Los Angeles, among others. The return rate was rather typical for mail surveys—i.e., approximately 11% or 268 out of 2500 questionnaires—indicating that a strong self-selection bias operated. Since the return rate in each of the sampled occupational categories was low, it was considered meaningless to do analyses which focused on the ways in which members of these occupations rated their own occupation and others. Consequently, all subsequent analyses were done ignoring the specific occupations of the

[4] We thank Mr. Dimitrios Gemelos, a Greek journalist, and Dr. Sophia Sakka, Head of the Research Department at the National Centre of Social Research in Athens, Greece, for their help in translating the questionnaire into Greek.

raters. The members of the Greek adult sample were approached individually in their homes or places of business in Athens.

The students in both cultures were handed the questionnaires in class and asked to fill them out. All four samples filled out the questionnaires anonymously. Aside from the questionnaire information, the only personal information requested from them was their age, sex, and occupation.

C. Results

It was important to determine, first of all, whether or not *S*s were discriminating in their responses between the five dimensions used for the ratings of the occupations. Accordingly, Pearson product-moment correlation coefficients were computed between them. Virtually all of the correlational outcomes were low to moderate in magnitude, with a median correlation of .29, indicating that the bulk of the variance could not be attributed to halo effects.

Two other preliminary analyses were also conducted before examining the primary data of the study. Correlations between the ratings of the students and adults for each culture were computed and yielded such a high degree of agreement that the data were combined for all subsequent analyses into two general cultural groups. The correlational outcomes ranged from .87 to .98. In addition, correlations between the ratings for men and women for their ratings of the various occupations on each dimension were calculated and showed coefficients ranging from .91 to .99 ($p<.001$). This outcome provides strong confirmation of previous findings which indicate that the sexes agree in their ratings of occupations. As a consequence, all analyses were conducted on data which were collapsed across the sex factor.

In order to test the primary hypothesis that members of the two cultures would tend to rate members of the various occupations similarly, correlations were computed between the mean ratings of the two cultural groups for the 20 occupations on each dimension. The correlational outcomes were as follows: truthfulness ($r = .86$), competence ($r = .77$), altruism ($r = .92$), power ($r = .95$), and status ($r = .86$). All of these outcomes were significant beyond the .001 level, indicating great similarity in the ratings on each dimension, as expected.[5]

Despite these similarities, there were some notable differences as well. In

[5] Interested readers can obtain the mean levels of the ratings on each dimension for the members of both cultures by writing to the junior author.

general, Greek *S*s rated people in education—i.e., university professors and high school teachers—more favorably than did American *S*s, while Americans rated members of the health profession—i.e., physicians, nurses, and dentists—more favorably than did the Greeks. Army officers were also rated more favorably on the various dimensions by the Greeks, as compared to the Americans.

While both cultural groups agreed that politicians were highly powerful, dishonest, incompetent, and selfish, they did differ in their ratings of them on the status dimension. Greeks tended to perceive politicians as having greater prestige than did the Americans. There was also a difference in the ratings of psychiatrists and psychologists by the two groups on the status dimension. The study by Ryckman and Sherman had shown that American college students accorded more status to psychiatrists than to psychologists, but the current data indicated that Greek *S*s perceived the members of both occupations as equal in status.

Finally, correlational analyses revealed that Americans perceived the members of the more prestigious occupations as being more powerful ($r = .50$, $p < .05$), truthful ($r = .48$, $p < .05$), altruistic ($r = .58$, $p < .05$), and competent ($r = .82$, $p < .01$) than members of the less prestigious positions. The data also indicated that the Greeks perceived the members of the more prestigious occupations as being more powerful ($r = .66$, $p < .01$) and competent ($r = .65$, $p < .01$) than members of the less prestigious jobs. Altruism ($r = .37$) and truthfulness ($r = .29$), however, were not related to status for the Greeks. For both the Greeks and Americans, altruism, truthfulness, and competence were unrelated to power.

D. Discussion

The results of the present investigation confirmed previous research findings which indicate that people's ratings of the prestige hierarchy of occupations tend to be similar across different cultures. Thus, it was found once again that professionals were esteemed most highly, followed by businessmen and clerks, with laborers being rated most negatively. Furthermore, it was shown for the first time that people of different cultural and occupational backgrounds also tended to agree strongly, not only in their status attributions, but in their assignment of other characteristics, such as competence, altruism, truthfulness, and power to members of various occupations. The data also indicate that, for both Greeks and Americans, knowing the status, rather than the power of given occupa-

tions, would allow us to predict more accurately the kinds of attitudes that members of the general public would have toward them.

In conclusion, future research efforts might include asking groups of people to rate these occupations and others on a variety of characteristics other than the ones surveyed in the present investigation. Such studies would not only provide data that are interesting and informative to the members of different occupations, but also to people who are in the process of making difficult career choices.

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CULTURAL VARIATIONS IN PERSONAL SPACE*

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SUMMARY

This investigation was designed to study the effects of cultural background on personal space. Forty-five male students, 16-17 years old, who had been in Israel approximately a year, comprised three background-nationality groups: Argentinian, Iraqi, and Russian. The personal space tasks required them to arrange silhouettes in interacting situations between a self-referrent figure and four other figures representing: (*a*) a good friend, (*b*) an Israeli, (*c*) a person with the same national background, and (*d*) a stranger. The results indicated that there were basic differences in personal space contingent upon culture, that the smallest distance was displayed toward a friend and the largest toward a stranger, and that cultural and situational variables interacted significantly, since certain cultures, as opposed to others, did not reveal a large space range across situations. It was also found that a relatively small personal space was displayed toward desired (Israeli) and background (native) cultural figures.

A. INTRODUCTION

Although relatively recent, a rather large body of research has already been accumulated in the area of social interaction distance, often referred to as "personal space" (11). Personal space has been defined as "the area immediately surrounding the individual in which the majority of his interactions with others take place" (7, p. 237). It is conceptualized as a series of fluctuating concentric globes of space, each defining a region for different kinds of social interactions (5, 7). The spheres are considered to be fairly consistent within a person (6) but to vary in size and shape from

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[1] Thanks are due to Etziona Kushnir and Abraham Shani for their contributions in all stages of this study.

person to person due to differences in personality characteristics (2, 10, 13, 14), situational variables (7), and cultural background (4, 5, 8, 12).

This study focuses on both the cultural aspect, as defined by the *S*s' cultural background, and the interpersonal situation, as defined by the relationship of the interacting *S*s.

That culture constitutes a determining factor of interaction distances seems obvious from "life" transactions (1). Hall's (5) discrimination between contact and noncontact cultures provided a theoretical framework for Little's (8) study in which he found that *S*s of Mediterranean "contact" culture had significantly closer interaction distances as compared to "noncontact" North European *S*s. There is also considerable agreement, even among various cultural groups, as to the ordering of the distances for different interpersonal transactions, depending on the degree of acquaintance and closeness between the interacting parties. Friends will be perceived as interacting at closer distances than strangers (7, 8, 9).

In the present study we were interested in investigating cultural differences in personal space among people who had recently changed cultures and who now live in the same new culture—Israel. We chose to investigate three different cultural groups in four situations as defined by the object of interaction: a good friend, an Israeli, a person with the same cultural background, and a stranger. We investigated the following questions: Can it be assumed that people who have emigrated to Israel from various parts of the world reveal differences in social interaction distances? If cultural differences are apparent, what is the relationship between culture and social interaction variables? In other words, if—as other researchers have found—closer distance is yielded toward friends than toward strangers, does this hold for all cultures, regardless of whether they have an initially larger or smaller personal space? We asked ourselves whether the dimensions of acquaintance and familiarity also imply that of cultural similarity. If so, would immigrants reveal smaller interaction distances toward people of their own background as opposed to people from the general population?

B. Method

1. *Subjects*

*S*s were 45 male students in a boarding school, 16-17 years old. Each cultural background group consisted of 15 students. They comprised three previous national groups: Argentinian, Iraqi, and Russian. The *S*s were all born in the respective countries from which they came. At the time the

research was conducted, they were immigrants to Israel and had been in the country between nine and 12 months. Although they all lived under similar environmental conditions in Israel, they still were not integrated into Israeli culture. All subjects were matched for education, having had nine years of schooling.

2. *Materials*

The materials used for determining social interaction consisted of two dolls on an axis on which they could be moved Behind the axis was a meter (which the *S*s could not see) by which the *E* determined distances between the dolls (7). The figures were designed to represent men of college age in relaxed neutral standing positions, and were highly stylized: that is, faces were rounded off, clothing barely suggested, etc. Figures were scaled on the basis of 1:10 cm so that each figure was 17 cm high. The stimulus figures were apparently sufficiently abstract so the students had no difficulty "projecting" different ethnic qualities onto them.

3. *Procedure*

Each *S* was tested individually in one of the club rooms in the school. Instructions were printed on 20 × 14 cm cards in the different languages (double-checked for exact translation) and were handed to the *S* with the request that he read them aloud. The instructions informed the *S* that he was participating in a study concerning interpersonal interactions. He was then shown the apparatus and was asked to imagine that one of the figures represented himself and the other represented another youngster recently arrived to the group. The youngster was described as being one of the four interaction objects used in the different experimental conditions. He was either a friend, an Israeli, a person with the same cultural background as the *S* (e.g., an Iraqi for the Iraqi *S*), or a stranger.

The *S* was asked to locate the figures on the axis as they would stand talking in the club room, and to write down the content of their conversation. The purpose of the latter request was to minimize the *S*'s conscious focus on the distance.

Each *S* was presented with each of the four interaction figures in a randomized order.

C. Results

Personal space was defined as the distance in centimeters between the two figures placed on the board by the *S*. Table 1 presents the distances

TABLE 1
MEAN DISTANCES OF THREE CULTURAL BACKGROUND GROUPS IN FOUR SOCIAL SITUATIONS

Situation	Argentinian	Iraqi	Russian	Mean
Good friend	1.78	2.26	1.99	2.01
Same cultural background	5.63	2.61	4.30	4.17
Israeli	4.66	2.62	6.48	4.61
Stranger	16.35	5.88	10.99	11.06
Mean	7.10	3.36	5.94	

given by the three cultural background groups in four situational conditions.

A 3 × 4 mixed design analysis of variance was carried out for these means. A main effect of culture was found ($F = 10.03$, $df = 1/42$, $p < .01$) indicating that the largest mean personal space was revealed by South American *Ss* (7.10 cm), the smallest by the Iraqis (3.36 cm), with the Russians falling in the middle (5.94 cm).

Personal space was also dependent upon the situation. Across cultures, the closest mean distance was established with a friend (2.01 cm) and the furthest with a stranger (11.06 cm). The other two situations (i.e., that of an Israeli and that of a person from one's own country) yielded similar means of 4.61 and 4.17, respectively. The differences associated with situation were highly significant ($F = 52.21$, $df = 3/126$, $p < .01$).

A significant interaction ($F = 7.10$, $df = 6/128$, $p < .01$) indicated the different pattern exhibited by the three cultural background groups. Although the situation made a significant difference for each group, the effect was strongest for South Americans. They designated the smallest distance between friends (1.78 cm) and the largest between strangers (16.35 cm). The Iraqis showed the least situational variance, yielding a range of 2.26 cm (for close friends) to 5.88 cm (for strangers). The Russians showed an almost linear response: 1.99 cm for close friends, 4.3 cm for "same country," 6.48 cm for Israeli, and 10.99 cm for strangers.

An analysis of simple main effects showed that only for the "stranger" situations were these background differences significant ($F = 18.9$, $df = 2/42$, $p < .01$); South Americans gave the largest distance (16.35 cm), followed by Russians with 10.99 cm, and the Iraqis gave a low 5.88 cm.

D. DISCUSSION

The results clearly support our first assumption: namely, that there are basic cultural differences in personal space. *Ss* of the three different ethnic

cultures have revealed, across situations, significant differences in interpersonal interaction distances. The similarity of conditions—i.e., all the *S*s being in Israel—eliminates other past-environment-bound interpretations—e.g., that accommodation, temperature, or weather conditions existing in the *S*'s native country may account for differences in personal space. The fact that all the *S*s had resided in Israel for about one year but still revealed different personal space indicates the continuous power of cultural background influence, and at the same time lends strong support to the notion of *a priori* cultural differences in the area of personal space, as suggested by Hall (5) and Little (8).

While all three cultures showed a similar tendency toward the situational objects, revealing the shortest distance between a good friend and the largest distance between a stranger, a significant difference is apparent as cultural and situational variables interact. An examination of Table 1 reveals that the three groups behaved similarly with regard to the first three situational objects. This does not hold true, however, for "strangers." Here there was a "big jump" in interaction distances and the three cultural background groups are significantly different. This jump is highest for the Argentinians and lowest for the Iraqis. The Argentinians, however, also revealed the shortest personal space toward a friend. Discrimination was almost absent with Iraqi *S*s and they had the smallest space range in terms of the different interaction objects. On the whole, the South Americans and Russians showed a pattern in which differentiation toward the various interaction objects is clear, whereas the Iraqis revealed a pattern in which differentiation is obviously low. These findings are valuable in our understanding of personal space as a communicative index. It seems that in a culture which emphasizes closeness and small personal space, psychological and physical distance are not equivalent and do not convey similar meanings as some researchers had assumed (3). When the Iraqi *S*s revealed almost identical interaction distances toward a good friend and an Israeli and even toward a stranger, we must ask to what extent personal space in that culture is a communicative means. On the other hand, in cultures where interaction distances are relatively large, such as with the Argentinians and Russians, personal space may be used differentially according to situational determinants and hence carries communicative significance.

The findings are also meaningful when related to the so-called concepts of "contact" and "noncontact" cultures (5, 8). If these concepts rest on commonalities of proxemic behavior, then the significant differences found within the group of cultures usually designated as "contact cultures" (i.e.,

Arabs and South Americans) indicate the importance of needed differentiation and redefinition on a more accurate basis of that global, generalized cultural concept.

The exploration of the final hypothesis indicates that in the general frame of interpersonal interactions "same cultural background" may be comprehended on a friend-stranger continuum. For these *S*s, "same cultural background" is closer to "friend" than to "stranger." It seems that under certain circumstances, interacting with a person of the same previous culture carried the direction and weight of interacting with a personal friend. Furthermore, in noticing the relatively short distance revealed by all the *S*s toward Israelis, we may speculate that Israel—the country to which the *S*s of all nationalities had emigrated—represents to them a desired nationality and culture, and therefore indicates a wish for closeness. In line with this, it may be that social desirability and a wish to identify with Israeli culture is rather strong, and hence explains the similarity in distances shown toward Israelis and toward a member of the same cultural background.

In conclusion, this study supports the notion of *a priori* cultural differences in proxemic behavior (5, 8, 12), although concepts which generalize cultures (e.g., "contact cultures") on the basis of such behavior should be more carefully defined. It also supports the notion of personal space as a communicative pattern expressed in situations characterized on acquaintance—including cultural background—stranger continuum (7, 9). At the same time, caution should be exercised in generalizing such communicative patterns across cultures, since some cultures reveal closeness across all situations. The data indicate that personal space patterns may be described as a function of one's culture, the definition of the interactional situation, and as a function of both. Although we know that certain situations—e.g., interacting with a stranger—may carry heavier weight than does culture, at this point we are still a long way from either knowing all the relevant cultural and situational variables or their exact weight.

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IMITATION OF A HELPFUL MODEL: THE EFFECT OF LEVEL OF EMERGENCY*[1]

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SUMMARY

The present research was designed to test the hypothesis that a helpful model would facilitate helping behavior only in a low level emergency situation, and not in a high level emergency situation. A 2 × 2 field study was carried out, with *S*s being 32 shoppers in a supermarket, and variables being the presence of a model and the level of emergency. Results indicated an interaction between the presence of a model and the level of emergency that supported the hypothesis. It was suggested that in a high level emergency situation, *S*s try to avoid the high cost of helping by diffusing responsibility to the model.

A. INTRODUCTION

Since the work of Bandura and Walters (1) on imitation as a form of learning, a sizable body of psychological research with North American *S*s has established the importance of a model in eliciting or increasing the frequency of a number of behaviors (e.g., jaywalking 13, disobedience 15, administration of electric shocks 6, tolerance of pain 5). In general, psychologists (e.g., 9, 14) have attributed the effect of models to some version of the following two factors: (*a*) The model may demonstrate the behavior to an observer who had not previously known how to perform that behavior; (*b*) The model may serve to remind or indicate to the observer that the behavior is either appropriate and socially desirable, or at least unlikely to lead to punishment. Each one of these factors could be

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[1] The authors are indebted to Mike Gaynor for his generous help in acting as confederate.

[2] Requests for reprints should be sent to the first author at the address shown at the end of this article.

[3] This experiment is based on an undergraduate honors project by the second author under the direction of the first author.

operative in a situation in which altruism is one of the alternative responses, and thus it is not surprising that the presence of a model has been shown to be effective in the elicitation of altruism. Research with children, for instance, has shown that "altruistic" models increase sharing and charitable donations (7, 18). Research with adults in the laboratory has shown that helpful models increase both productivity on behalf of a supervisor (2), and charitable donations (20), while research with adult *S*s in the field has shown that altruistic models increase volunteering (17), petition signing (3), mailing a lost wallet (8), fixing a flat tire (4), and again, donating to charity (4, 14).

The tests of altruism used in the studies noted above all seem to fall in the category of "low-level" emergencies, in the sense that the person requiring help was in no great danger, and there was no overwhelming need for an immediate response. In addition, as would generally be the case in such low-level emergencies, the altruistic responses called for were of relatively low cost to the *S*s.

A recent trend in studies of helping behavior (e.g., 11) has been to focus, not on such low level emergencies and low cost responses, but rather on what has become known as "bystander intervention," high cost helping in more serious emergency situations. In such situations, the needy person may be in danger; an immediate response is required, and the type and duration of help or involvement may be extensive or unclear. As examples, recent experiments have involved the staging of such emergencies as epileptic fits and fainting spells (11). While a number of the variables used in these experiments have been shown to influence bystander intervention, the question of altruistic models appears to have been ignored. Some of these bystander intervention studies have utilized models; however, these have all been nonreactive models, who failed to help (e.g., 12, 19).

While the previous research on models and helping might lead one to predict that the positive effect of the model would be as true for bystander intervention as for any other response, the notion of "diffusion of responsibility," introduced in the context of bystander research, suggests an alternate hypothesis. Latane and Darley (11) proposed that bystanders in groups help less than bystanders alone because, among other reasons, they can diffuse or share responsibility with the other bystanders. Applying this notion to a "high-level" emergency situation in which an altruistic model is present, one might suggest that the bystander could "diffuse responsibility" to this helpful model. It was suggested earlier that models can either teach a behavior or indicate its appropriateness. However, in the intervention

situation, these functions might not be sufficient to elicit performance. Instead the bystander, observing the emergency, and taking into account the high cost of helping, might rationalize a failure to act on the grounds that the victim is already receiving help. Or, to put it in other words, the model and the subsequent diffusion could act as a means of avoiding the self-inflicted cost of acting selfishly or inappropriately. This prediction is supported by Piliavin, Rodin, and Piliavin's suggestion (16) that the diffusion of responsibility effect will increase as costs of helping increase and costs for not helping decrease.

In order to test the above notion, the present study utilized a 2 × 2 design with the following variables and levels: (*a*) level of emergency: high level *vs.* low level; (*b*) presence of a model: model *vs.* no model. The study was carried out in a field setting: the shopping aisles of a grocery store. It was hypothesized that in a low level emergency, presence of a model elicits more helping than absence of a model; and that in a high level emergency, presence of a model elicits less helping than absence of a model. Thus, an interaction between presence of a model and level of emergency was predicted.

B. Method

1. *Subjects*

Thirty-two adults, ranging in age from about 20 to 60, served as *S*s for the study, eight being assigned to each of the four conditions. Only single individuals who were shopping alone and were not surrounded by other shoppers were chosen as *S*s.

2. *Setting*

The study was conducted in a large supermarket in a middle-class New York City area. The emergencies were staged only in aisles of the supermarket wide enough to allow *S*s who failed to help to pass by the victim of the emergency.

3. *Experimenters*

The study was conducted by two male college undergraduates. The *E* (P.G.) acted as victim of the emergency, and the confederate as the model in the "model" conditions. Both were dressed as "average" customers.

4. *Procedure*

In the low level emergency, the *E* was carrying pencils, index cards, and sheets of paper in a folder; at the beginning of each trial, he "accidentally" dropped the folder, allowing all of the items to spill on the floor. In the

high level emergency, at the beginning of each trial, the *E* appeared to experience sudden stomach cramps; as in the low level emergency condition, he dropped a folder of small items. He then held his stomach with both hands, groaning in pain, as he crouched down to the floor.

In the model condition, the emergency was followed by the confederate helping the *E* (walking over to him and beginning to pick up the spilled items). The helping was accomplished with a minimum of interaction between the *E* and the model. In the no model condition, the emergency was not followed by helping responses from the confederate.

In the high level emergency condition, *S*s who helped were thanked for their responses, and assured that the stomach pains were not serious (a stomach virus), while in the low level emergency condition, *S*s who helped were simply thanked.

The experiment was conducted at various times of the day, and on different days of the week. All four conditions were run on each day, the order of conditions being varied on a random basis.

C. Results

1. *Manipulation Check*

Prior to the running of the study, 18 middle-class, male and female *S*s, ages 20-60, responded to a questionnaire describing the two emergency situations actually used in the study. The *S*s were asked to rate the seriousness of each emergency on a four-point scale. The resulting means indicated a large difference between the ratings, the high level emergency mean being near the top of the scale, and the low level emergency mean near the bottom (low level emergency mean .33, high level emergency mean 3.0—the higher the scale value, the higher the perceived seriousness of the emergency). The standard deviations showed little variability about the means for both emergencies (low level emergency standard deviation .69; high level emergency standard deviation .49).

2. *Helping Responses*

The percent of helping responses in each condition is shown in Table 1.

It can be seen that the results were in the direction predicted. In the low level emergency condition, there was more helping in the model than in the no model situation. Moreover, this difference was statistically significant ($\chi^2 = 4.04$, $df = 1$, $p < .05$). In the high level emergency condition, the pattern of results was reversed. However, the difference between the model and no model condition was not statistically significant ($\chi^2 = .27$, $df = 1$, $p > .05$).

TABLE 1
PERCENT OF HELPING RESPONSES IN EACH CONDITION

Level of emergency	Model	No model
Low	75.0	12.5
High	25.0	50.0

Note: $N = 8$ in each cell.

In order to test the prediction of an interaction between the presence of a model and the level of emergency, a procedure outlined by Langer and Abelson (10) was used. The proportions of helping were transformed via an arc sine transformation and the following z ratio established:

$$z = \frac{[(\phi_a - \phi_b) - (\phi_c - \phi_d)]}{\sqrt{1/N + 1/N + 1/N + 1/N}}.$$

The z for the interaction was 2.69 ($p < .0036$, two-tailed test), thus confirming the prediction.

D. DISCUSSION

As predicted, an interaction between the presence of a model and the level of emergency was obtained. Moreover, the pattern of the data was as hypothesized. In the low level emergency condition, essentially a replication of earlier studies cited above, there was more helping in the presence of a model than in the absence of a model. In the high level emergency condition, the opposite pattern obtained. There was somewhat more helping in the absence of a model than in the presence of a model.

While other research has also shown that it is possible to reduce the effectiveness of models, the inhibiting variables in those studies have involved either the characteristics of the model (e.g., 8, 19) or the consequences to the model of the action taken (e.g., 8).

In the present research, on the other hand, it has been shown that the characteristics of the situation can influence the effectiveness of the model. As mentioned in the introduction, this can essentially be interpreted in terms of a cost-reward framework. In the low level emergency, the cost of helping is low, and the rewards (e.g., gratitude and high self-esteem) are high. The model reminds the *S* of the appropriateness of helping and of his need to maintain his own good image in that regard. However, in the high level emergency, the cost of helping is high, and thus the *S* is likely to be reluctant to incur such a cost, despite the possible rewards. In this instance, the model offers the *S* diffusion as a way of reducing the cost of failing to help. It should be noted that in a field situation such as in the

present experiment, even the *Ss* in the no model/high emergency condition could have used such techniques to reduce the cost of failing to help. Given the crowded environment of a supermarket (and many other environments in urban areas), a person might well have assumed that someone other than himself would presently be available to give aid. This diffusion to an *unseen* other would have acted to reduce the difference between the model and no model/high emergency conditions; however, this difference still obtained in the direction predicted.

It is often noted (e.g., 11) that people in big cities fail to help in high level emergency situations. The previous research on modeling would lead one to think that this tendency could be combatted by providing models of altruism for people to imitate. The present research, however, indicates that the solution may not be that simple, at least for middle-class North American people in the situation in which the bystander and the model have the opportunity to help the same victim. This conclusion will make sense to any reader who has been in the position of being the first person to help in a high level emergency. In the heart of New York City, for instance, this act of helping often causes a crowd to gather around the formerly neglected and ignored victim. However, the crowd tends to be a curious rather than a helpful one. In fact, should it be intimated to the bystanders that they too might have to become involved, they tend to vanish as quickly as they had gathered shortly before.

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AN UNOBTRUSIVE STUDY OF REACTIONS TO NATIONAL STEREOTYPES IN FOUR EUROPEAN COUNTRIES*[1]

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SUMMARY

In a cross-cultural adaptation of Doob and Gross' unobtrusive technique, reactions to national stereotypes were evaluated in four European countries, Germany, France, Spain, and Italy (N = 120). In matched trials traffic was temporarily blocked at selected intersections, and the latency and duration of the resulting aggressive response (honking) were analyzed as a function of the nationality of the offending vehicle and the nationality of the Ss. The latency of honking was found to be significantly affected both by the national insignia displayed on the vehicle and the nationality of the Ss, while no significant sex differences were found. The results suggest the applicability of this technique for the unobtrusive measurement of attitudes to national stereotypes.

A. INTRODUCTION

Doob and Gross (4) proposed an ingenious unobtrusive technique for the evaluation of status and sex effects on the inhibition of an aggressive response (horn-honking). The technique consists of temporarily blocking the traffic at an intersection after the light has changed to green, and measuring the latency and duration of honking by the next driver as a function of (*a*) the status of the frustrating car, (*b*) the sex of the offending driver, and (*c*) the sex of the S. This method was used with partial success, among others, by Chase and Mills (3) and by Bochner (1) in Australia. In both cases the status of the frustrator and the sex of the drivers were the main independent variables.

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In all of these studies the inhibition of aggressive response can be construed as a behavioral indicator of positive or negative attitudes towards a stimulus which was primarily defined in terms of status and sex factors. However, if horn-honking is a valid measure of attitudinal dispositions, a much wider range of potentially relevant independent variables could be studied by this method. Because the technique is unobtrusive and involves the observation of actual behavior rather than the analysis of verbal statements, it could meet, in part, some of the traditional criticisms of attitude measurement. Given that motor cars can symbolize much more than status, a number of possible unobtrusive stimulus manipulations could be pursued. This study focuses on a preliminary exploration of the effects of the nationality of the offending vehicle on the differential inhibition of this aggressive response.

With widespread motorized tourism in Europe, the sight of foreign cars is a common enough occurrence in every city. Under the generally depersonalized conditions which characterize the relationship between different participants in traffic (7), foreign cars become symbolic representatives of their respective nations. The widespread custom, and in some European countries obligation, to display national insignia in the form of stickers and badges, only facilitates this process. There is some compelling evidence suggesting that stickers and labels displayed on cars have a profound effect on reactions to the labelled vehicle, not least by the police (6).

In the present study the nationality of the offending vehicle was systematically manipulated by the selective display of national insignia, in an attempt to evaluate the applicability of this technique for the measurement of reactions to national stereotypes. A second hypothesis concerned cross-cultural differences in reactions to frustration of this type in four European countries. Other unobtrusive techniques have already been successfully applied in similar cross-cultural contexts (5). In summary, it was expected that the latency and duration of the aggressive response (horn-honking) would be a significant function of (*a*) the nationality of the "frustrating" vehicle and (*b*) the nationality of the *S*s.

B. Method

A relatively nondescript vehicle (a grey VW 1200 Beetle) was equipped so that two sets of national insignia, prepared on a transparent plastic card, could be interchangeably displayed in the rear window. When in position, the cards covered about half of the rear window surface, and the displayed insignia appeared as permanently affixed stickers. Both sets contained (*a*)

the standard national identification code set in a white oval field, and (*b*) the national flag, also in an oval field.

In one condition the insignia and the flag of a highly salient nation, Germany, were displayed. In the second condition the relatively little known insignia and flag of Australia were used. This second condition could be regarded as a control condition, more or less satisfying the requirements of a generic "foreign" car, representing a nation with a presumably neutral national stereotype of a low salience. The first condition can be construed as an experimental condition, and response differences should thus reflect reactions to the well known, and salient, German national stereotype.

The second independent variable was the nationality of the *S*s. The study was conducted in four European countries, France, Spain, Italy, and Germany, under comparable conditions. In each country, towns of intermediate size (100,000-300,000 inhabitants) were selected. The procedure was the same in every town: a preselected route was followed, and at every intersection with traffic lights an attempt was made to place the car in the first position. Whenever this was successful, an observation was made, with the use of randomly varied national insignia displays. The intersection of every successful trial was marked, and after completing the preselected route, the car returned to the starting point, and a second run began, this time with the use of the alternative national insignia at every appropriate intersection. The standard procedure involved blocking the intersection for 15 seconds after the light changed to green, and recording (*a*) the latency of the first honking response, (*b*) the duration of honking, and (*c*) the sex of the driver. Trials were always run on weekday afternoons, excluding peak-hour periods. In all conditions, the experimental vehicle was occupied by a male driver and a female research assistant who recorded the *S*s' responses. A small number of measurements had to be eliminated because of difficulty of obtaining a second run response, no honking in the 15-second interval, or because the next car simply drove past the blocking vehicle. In every country the study was continued until 15 matched observations in the two stimulus conditions were obtained.

C. Results

In this study the sex of the *S*s did not significantly affect either the latency or the duration of honking, and thus data from both male and female *S*s were analyzed together.

With respect to the latency of honking a two-way analysis of variance

was performed, evaluating the effects of two levels of stimulus nationality and four levels of *S* nationality in a complete between-*S*s design. (N = 120 or 15 per cell). Highly significant main effects for stimulus (F = 14.25, df = 1/112, p <.001) and *S* (F = 12.56, df = 3/112, p <.001) nationality were found, while interaction effects failed to reach statistical significance.

The effects of the nationality of the stimulus and the *S*s on the second variable, duration of honking, were analyzed by a similar two-way analysis of variance, which yielded no significant main or interaction effects.

From these results it is clear that both the nationality of the frustrating vehicles and the nationality of the *S*s had a significant effect on the latency of honking, while neither affected its duration. Given that the measurement of the duration of honking, normally below the one second mark, was probably rather less reliable than latency measures, it is worth noting that even for this measure the nationality of the vehicle had an effect approaching significance (F = 3.82, df = 1/112, p <.10).

D. Discussion

The results clearly indicate that the methodology pioneered by Doob and Gross is indeed applicable to the evaluation of national stereotypes. A closer analysis of the latency of honking (Figure 1) reveals some even more interesting features of the data.

It is notable that in the three countries, France, Spain and Italy, where both the Australian and the German insignia represented foreign countries, the latency of the first honk was greater for the Australian condition. This may be interpreted in several ways. First, the reduced latency of honking may reflect the generally more negative German national stereotype in these countries, or in a more limited sense, attitudes towards German tourists. Secondly, these differences may be attributed to the differential salience of the two stereotypes examined: lack of familiarity with the Australian insignia may have delayed the aggressive response. Alternatively, it is possible that while the Australian stereotype was correctly recognized, honking was delayed as a result of sympathy with a non-European tourist, assumed to be less familiar with the relevant traffic conditions. This latter interpretation would imply that, in some situations, reaction to more distant and unfamiliar stereotypes is more tolerant and positive than is generally believed.

The present results also indicate significant differences between the auto- and heterostereotype of Germans, contrary to most previous findings (2). While this may be partly explained by the undifferentiated nature of the

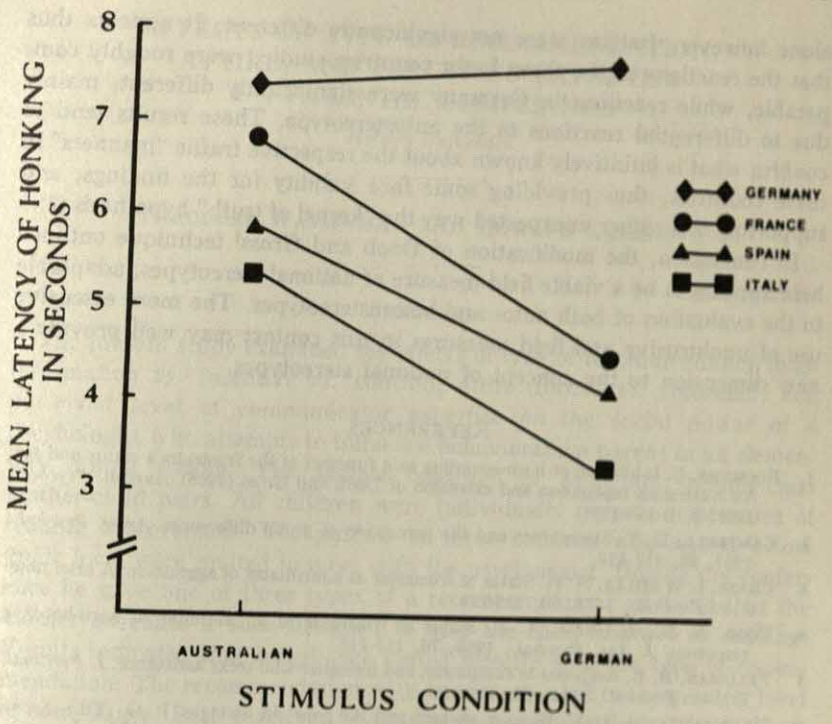

FIGURE 1
Mean Latency of Honking for the Two Stimulus Conditions in Four Countries

dependent variable in this study, it also tends to highlight the ambiguities inherent in the concept of national stereotypes. Germans may be described in similar terms by foreigners and by themselves, but their reactions to the same stereotype in real life situations may be vastly different. There were some interesting differences between the four countries in their respective levels of tolerance towards a frustrating foreign motorist. An *ex-post-facto* statistical analysis using Scheffe's method was undertaken to evaluate these national differences in the latency of honking. The Germans appeared to be least aggressive in this regard ($F = 66.98$, $df = 3/116$, $p < .001$), followed by the French and the Spanish, although differences between these latter two nations failed to reach significance. The readiness to honk, perhaps not surprisingly, was greatest in Italy when compared with the other countries ($F = 16.59$, $df = 3/116$, $p < .01$). When compared with Spain or France

alone however, Italians were not significantly different. It appears thus that the reactions in the three Latin countries studied were roughly comparable, while reactions in Germany were significantly different, mainly due to differential reactions to the autostereotype. These results tend to confirm what is intuitively known about the respective traffic "manners" in these countries, thus providing some face validity for the findings, and supporting in a rather unexpected way the "kernel of truth" hypothesis (2).

In conclusion, the modification of Doob and Gross' technique outlined here appears to be a viable field measure of national stereotypes, adaptable to the evaluation of both auto- and heterostereotypes. The more extensive use of unobtrusive and field measures in this context may well provide a new dimension to the concept of national stereotypes.

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EFFECTS OF TYPE OF RECOMMENDATION, ATTIRE, AND PERCEIVED EXPERTISE ON PARENTAL COMPLIANCE*

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SUMMARY

The present study examined the effects of type of recommendation (high information *vs.* incentive *vs.* control), attire (formal *vs.* informal), and perceived level of communicator expertise on the social power of a pscyhologist who attempts to influence behaviorally a parent in an elementary school setting. The sample consisted of 84 white, middle-class mother-child pairs. All children were individually tested on measures of reading achievement. The parents of those children who scored below grade level were invited to meet with the psychologist. During the conference he gave one of three types of a recommendation, advising that the mother purchase a book designed to help the child improve in reading. Results indicated that compliance varied directly with the type of recommendation. The recommendation with an incentive led to the greatest level of compliance. Both perceived level of expertise and attire of the psychologist were found to have no effect. An additional finding indicated greater social power effects with mothers of younger rather than older children.

A. INTRODUCTION

Social power theory (3, 4) is used to explain attitude, opinion, or behavior change in one person, B, as a result of interactions with another person, A. B is thought to be influenced by A because A's message is backed by a relevant social power base. A number of power bases have been identified including referent, legitimate, coercive, expert, reward, and information power. While each has been shown to affect the influence process, the present study focused on the effects of the latter three.

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Providing pertinent information is effective in producing both attitudinal change and behavioral compliance. According to Raven (7) information successfully influences compliance when it induces a "basic change in the cognitive elements" of the receiver of the communication. Although in the professional setting school, clinical, and counseling psychologists often attempt to influence parents, teachers, and patients by just this method, little research has systematically investigated the effects of information power in such settings. In the present study, therefore, a "recommendation with high information" was one type of message considered. A second was called a "recommendation with an incentive." It was hypothesized that compliance would increase when a recommendation was made which offered either high information or an incentive, in comparison with a control condition which offered neither.

A number of studies have investigated the effects of communicator expertise on the influence process. While most have focused on attitude change, a series of recent studies have tried to delineate the effects of expert power on behavioral compliance. Ross (9), for example, found that lower class black mothers were more likely to comply with the advice of a white expert than with the advice of a black peer. His recommendation was that parents send for free blocks to aid in their preschool child's perceptual-motor development. A similar, positive effect of expertness was found by Crisci and Kassinove (1) who recommended that white, middle-class mothers of first grade children purchase a book on child management techniques. In their study, parents were more likely to comply when the psychologist called himself "Doctor" than when he called himself "Mister." However, Frankel and Kassinove (2) used the same manipulation of expertise and did not find the previously obtained positive effect. They used teachers of elementary school children as *S*s. Each teacher recommended a child who showed a reading problem for a psychological evaluation. Following the evaluation it was suggested that the teachers write for free educational materials to help the child. Compliance was unrelated to the expertise (educational level) of the psychologist. In explaining their finding they argued that school psychologists "may influence teachers as a function of legitimate power, whereas expert power is operative when dealing with the public." In the present study the effect of expert power on parental compliance was investigated further to confirm or disconfirm the results of Crisci and Kassinove, and to investigate possible interactions with information power and reward power.

In addition, the effect of attire on parental compliance was considered.

Compliance with communicator messages has been shown to vary with the formality of attire of the communicator (8, 12). Typically, *E*s are dressed in formal or "hippie" attire and they ask strangers for change of a quarter or if they may cut in front on a long supermarket line. Compliance has been found to be greater when the communicator is dressed in formal attire. In the present study, it was hypothesized that compliance would vary directly with attire.

In summary, the present study investigated the effects of type of recommendation, degree of perceived expertise and attire on the behavioral compliance of parents. The study used a middle-class population and was carried out in an elementary school so that the effects of the independent variables in a professional setting could be determined.

B. Method

1. *Subjects and Design*

The *S*s were 84 white, middle-class mothers of children enrolled in either the fourth (31 boys, 17 girls) or sixth (19 boys, 17 girls) grades in a suburban, parochial elementary school. The sample was drawn from the same school used in the study by Crisci and Kassinove (1). Each child was assessed as being below grade level in reading. Mothers were assigned to one of 12 groups, each containing seven *S*s. Depending upon the particular experimental condition, the fourth grade group and sixth grade group differed on one of three independent variables (*a*) type of recommendation, (*b*) attire, and (*c*) expertise, resulting in a $3 \times 2 \times 2$ design.

2. *Procedure*

All children in the fourth and sixth grades were tested individually by the senior author during school hours. An abbreviated Wechsler Intelligence Scale for Children (13) consisting of the information, similarities, and picture completion subtests, and the reading section of the Wide Range Achievement Test (5) were administered. In addition, each child had been previously screened by school personnel on the Stanford Diagnostic Reading Test (11).

At the end of the day, mothers of each child tested who met the criterion of being below beginning grade level (4.0 or 6.0) on both assessment instruments were reached by telephone so that a conference could be arranged. The conference was modeled upon that described by Crisci and Kassinove (1).

When the mother arrived for the interview she was greeted by the psychologist who introduced himself as either "Dr." or "Mr." _____. Depending upon the experimental condition, the psychologist greeted the mother in one of two states of attire, formal or informal. Informal attire consisted of suit pants and an open collar shirt. In the formal attire condition a tie and suit jacket were also worn. The mother was then brought into the psychologist's office and seated on the opposite side of his desk. Door and desk signs indicating the title "Dr." or "Mr." were plainly visible. During the interview the psychologist made one of three types of recommendation. Each recommendation was preceded by a standard opening and followed by a standard closing.

The recommendations were as follows:

Standard Opening

"As you know Mrs. _____, I tested your _____ (son/daughter), _____ (first name) as part of the educational testing program. The tests I have given (him/her) indicate that (he/she) does appear to have some difficulty with reading."

Recommendation with Incentive

"I am going to recommend to you that you purchase a book that tells parents one method of teaching reading that many psychologists, educators, and parents have found effective. If you purchase this book and let me know that you have read it, by calling me here at the school, then we can arrange for an appointment for you and _____ (child's name) to come to two demonstrations of the method described in the book. Of course, in order for you to understand the demonstration, it will have been necessary for you to have read the book. In one of the demonstration sessions I will work with (child's name) showing you and (him/her) how to apply the methods described in the book."

Recommendation with High Information

"I am going to recommend to you that you purchase a book that tells parents one method of teaching reading that many psychologists, educators, and parents have found effective. Many parents have found that by reading the book and using the methods described in it they can help their children at home with their reading problems. This book is based upon an operant approach to reading which means that _____ (name of child) will be systematically rewarded for reading better. You will be able to keep

track of (his/her) progress by using charts and graphs which will be of great assistance to you. I have just finished teaching reading to a child who had similar problems to those of (name of child) and I can tell you that this child improved greatly by using this method."

Control Group Recommendation

"I am going to recommend to you that you purchase a book that tells parents one method of teaching reading that many psychologists, educators, and parents have found effective."

Standard Closing

"The price of this book is one dollar. You can obtain the book by picking up one of the cards on the table outside, writing your return address on it, enclosing the card and one dollar in the self-addressed envelope provided and mailing it. I strongly urge you to get one of these books. I'm sure it would be beneficial to you."

3. *Dependent Variables*

There were two dependent variables. Each was used previously by Crisci and Kassinove (1), and Ross (9). The first measure, one of initial compliance, was whether or not the *S* picked up the card immediately following the interview with the psychologist. The second dependent measure, one of delayed compliance, was whether or not the *S* mailed in the card requesting the book (the card was sent to an "educational company," at the junior author's home address).

C. Results

The data were analyzed by a distribution free analysis of variance, applicable to a chi square statistic (14).

The results indicated that the type of recommendation made had a significant effect upon *initial* parental compliance when the data from the fourth and sixth grades were combined ($\chi^2 = 9.43$, $df = 2$, $p < .01$). Twenty-five out of 28 mothers picked up the card in both the information and incentive conditions, whereas only 17 of 28 did so in the control condition. Type of recommendation also had a significant effect upon compliance for the mothers of the fourth graders ($\chi^2 = 9.50$, $df = 2$, $p < .01$). When these data are considered independently, 15 of 16 in both the incentive and the information conditions picked up the card, as compared to nine of 16 in the control condition.

Separate chi square analyses indicated that for initial compliance the information condition was significantly different from the control condition for both the combined grades ($\chi^2 = 6.13$, $df = 1$, $p < .05$) and the fourth grade ($\chi^2 = 6.00$, $df = 1$, $p < .05$). Chi square analyses for initial compliance also indicated that the incentive condition was significantly different from the control condition for both the combined grades ($\chi^2 = 6.12$, $df = 1$, $p < .05$) and fourth grade considered independently ($\chi^2 = 6.00$, $df = 1$, $p < .05$).

When *delayed* compliance was considered, type of recommendation had a significant effect only when the fourth grade data were considered independently ($\chi^2 = 6.00$, $df = 2$, $p < .05$). Eight of 16 people in the information condition mailed in the card as compared to 11 of 16 in the incentive condition and 4 of 16 in the control condition. Separate chi square analyses indicated that the incentive condition was significantly different from the control condition ($\chi^2 = 6.16$, $df = 1$, $p < .05$), while the information condition was not.

No significant sources of variance were found for the variables of expertise or attire, and no variable was effective when the mothers of the sixth graders were considered independently. When the data were collapsed over attire and expertise, and 3 × 2 analyses were performed between grade of *S* and type of recommendation, interactive effects were indicated for both initial ($\chi^2 = 35.8$, $df = 2$, $p < .01$) and delayed ($\chi^2 = 31.8$, $df = 2$, $p < .01$) compliance. The offering of either high information or an incentive was effective in inducing compliance in the fourth grade parents, but not in the parents of sixth grade children.

D. Discussion

The results of the present study indicated that parental compliance varied directly with the type of recommendation the psychologist made. Initial compliance was increased when mothers were given high information or offered an incentive for action. However, when delayed compliance was considered, the effects of high information disappeared and compliance increased over the control condition only when an incentive was offered. In addition, these results were stronger at the fourth grade level than at the sixth grade level. The present data are thus supportive of the concepts of both information power and reward power, and demonstrate that these power bases can be used to induce behavioral, as well as attitudinal, change.

Expertise was found to have no significant effect upon behavioral com-

pliance. Thus, the findings of Ross (9) and, particularly, Crisci and Kassinove (1) were not supported in the present study. A direct comparison between the present results and those of Ross is not possible, however, since Ross's *S*s were of a lower social class and he did not directly manipulate the variable of communicator expertise. A direct comparison with the finding of Crisci and Kassinove is also not possible, since they used *all* mothers of first grade children in their study, in contrast to the present study where only mothers of problem children were used. It is possible that when parents of problem children are used as *S*s, their level of involvement is uniformly higher. Thus, they may be more receptive to a communicator's message and the effects of expertise may be eliminated. As in the Frankel and Kassinove study, parents may view all psychologists as legitimate sources of influence when a problem exists for their child.

The attire of the psychologist was not found to be effective in increasing compliance. While it was hypothesized that parents would respond more to a psychologist who was dressed formally, the data were not supportive of this belief. As with expertise, however, it is possible that the effects of attire were minimized because of the high ego involvement of the *S*s. The importance of ego involvement in social power studies has been highlighted by Johnson and Scileppi (6), and Serano (10) and deserves further study.

The fact that no variables were successful in inducing increased compliance with the mothers of the sixth graders should also be mentioned. This developmental finding was unexpected and is difficult to interpret. Perhaps the parents of the sixth graders as compared with those of the fourth graders had more familiarity with the reading problem and had made many more attempts to deal with it. These parents would have met with more failure and, as a result, may have been resigned to the child's poor reading achievement. If this is true, it highlights the importance of early identification and remediation of educational handicaps, as well as the need to develop more powerful influence variables that professionals could use when dealing with more entrenched, difficult problems. The need for increased social power studies which use behavioral compliance as the dependent variable and professional settings as the experimental milieu is evident.

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THE EFFECT OF SEVERITY OF EXERTION ON LIKING FOR A CAUSE*

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SUMMARY

Forty-seven participants in a march for charity were interviewed to test the dissonance hypothesis that a goal will become more attractive as *Ss* expend increasing amounts of effort in service of the goal. As predicted, the number of marchers who cited the charity as a justification for their behavior increased as the march progressed through the first 27 miles. Unexpectedly, the frequency of charity citings was lower at the finish line (35 miles) than at the 27-mile point.

A. INTRODUCTION

A number of laboratory studies have tested the dissonance theory proposition that people will come to value those goals for which they suffer. According to the theory, it would be dissonant to have undergone an aversive experience in order to obtain an unimportant or unattractive goal, so *Ss* should tend to enhance the desirability of the goal in order to justify their efforts. Aronson and Mills (2) tested this hypothesis by having *Ss* undergo a severe (embarrassing) or innocuous initiation in order to join a rather dull and boring discussion group. As predicted, those who had undergone the severe initiation were more attracted to the group than those who had undergone the mild initiation. Gerard and Mathewson (5) replicated these results using pain from electric shock rather than embarrassment as their method of manipulating initiation serverity. Hautaluoma and Spungin (6) used a difficult and onerous task as their severe initiation and replicated the finding for female *Ss*, but found a trend in the opposite direction for male *Ss*.

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The hypothesis has also been tested by Aronson (1), who manipulated the amount of effort needed to obtain containers which either held money or were empty. He found that *S*s in the effortful condition rated the color of the unrewarding containers as more attractive than did *S*s in the condition where little effort was expended, although the interpretation of this result has generated some controversy (7).

A third relevant series of studies (8, 9, 11, 12) has demonstrated that an effortful counterattitudinal advocacy results in more attitude change than a relatively effortless one.

The study reported below is an attempt to extend these studies by testing the effort hypothesis in a field setting. The experimental situation made it possible to vary effort over a wider range than that of previous laboratory studies. In addition, four levels of effort were employed in order to provide a more detailed test of the relationship between dissonance reduction and the degree of effort.

The experiment was performed during a "Miles for Millions" walk, an organized hike in which volunteers walk as far as 35 miles in order to raise money for charity. Each participant solicits sponsors to pledge an amount of money to the charity for each mile walked by that participant on the day of the hike. While the desire to help the charity is one important reason that people enter the walk, it is only one of the many motives. Social pressure, the challenge of walk, and the desire for outdoor activity on a sunny spring day are all important factors which lead to participation. These features make the setting appropriate for a test of the effort hypothesis. As the walk proceeds, the marchers should have an increasing need to justify their efforts, leading to an increase in the salience of the "higher" purpose of the hike, the charity.

B. Method

Teenage participants in the Ottawa "Miles for Millions" march were interviewed at four points along the route. The first interview site was located at the starting point; Site 2 was at the 13.5-mile point; Site 3 was at the 27-mile point; and Site 4 was at the finish line (35 miles).

1. *Subject Selection Procedure*

All interviews were conducted by two male investigators who selected the *S*s on the following criteria: (a) Only those marchers who appeared to be between 10 and 15 years of age were approached;[1] (b) Approximately

[1] Apparently the *E*s tended to underestimate the age of the marchers; hence a large number of *S*s were interviewed who were more than 15 years old. All were included in the analysis.

equal numbers of males and females were to be interviewed at each site; (c) No *S*s were to be interviewed at more than one site. All *S*s were separated from their companions during the interview to avoid extraneous influences on the respondents.

2. *Interview*

Each *S* was asked to reveal his/her age and the amount of money per mile that his/her sponsors had pledged for the charity. The major dependent measures were the responses to two questions dealing with the perceived goals of the march. The first was an open-ended question, "Can you tell me why you are doing this today?" The responses to this question were later coded into the five categories described in the *Results* section.

The second question asked the respondent to rate the importance of the walk on a 10-point scale with "1" signifying "not at all important" and "10" meaning "extremely important." *S*s were shown a card containing the scale while they were answering the question.

C. Results

1. *Characteristics of the Sample*

All *S*s who were walking without any sponsors were discarded from the final sample. There were eight such *S*s interviewed at Site 1, four at Site 2, eight at Site 3, and six at Site 4.[2] The mean ages and median pledges of the remaining *S*s were presented in Table 1. There were significant differences between sites in the ages of the respondents ($F = 19.20$, 3, 188 *df*, $p < .01$).[3] Much of this effect is due to the fact that Site 1 *S*s were younger than those at the other sites ($F = 52.39$, 1,188 *df*, $p < .01$).

TABLE 1
Sample Characteristics at Each Interview Site

Measure	Site 1	2	3	4
n male	21	27	22	22
n female	26	23	25	26
Mean age (years)	11.98	14.34	14.11	13.60
Median pledge (cents/mile)	50	60	50	50

There were no between-site differences in the amount of money per mile

[2] The statistical decisions in this paper are not changed if the data of these *S*s are included in the sample.

[3] All *p* values are two-tailed.

TABLE 2
PERCENTAGE OF SUBJECTS CITING REASONS FOR MARCHING AT EACH SITE

Reason	Site 1	2	3	4
Charity	45	62	89	69
Fun	40	30	23	25
Challenge	6	14	6	12.5
Don't know	17	2	4	6
Other	4	4	4	12.5

pledged to the marchers. A few unusually high pledges (e.g., $60.56 per mile) distorted means and variances to the degree that meaningful parametric comparisons were impossible, but nonparametric tests failed to reveal any systematic pledge differences.

2. *Reasons for Marching*

Answers to the open-ended question were coded into categories which represent the major classes of reasons offered. The most frequently cited reasons were "the charity" and "fun," although three other classes were also included in the analysis ("the challenge," "don't know," and "other"). Many marchers gave more than one reason for their behavior. In these instances, both responses were included in the calculations. The frequency of multiple justifications did not differ between sites.

Table 2 presents the percentages of marchers who offered each of the major classes of justifications at each sampling site. The only significant change in response frequency occurred in the number of people who ascribed their behavior to a desire to benefit charity ($\chi^2 = 21.51$, 3 *df*, $p < .001$). As predicted, the percentage of marchers who cited the charity rose from Site 1 to Site 2 ($\chi^2 = 2.92$, 1 *df*, $p < .10$), and continued to rise from Site 2 to Site 3 ($\chi^2 = 9.71$, 1 *df*, $p < .01$). Unexpectedly, the frequency then fell from Site 3 to Site 4, the finish of the march ($\chi^2 = 6.07$, 1 *df*, $p < .02$). There were no significant differences between the responses of males and females.

3. *Ratings of March Importance*

When asked to rate the importance of the march on a 10-point scale, *S*s at all sites tended to choose the "extremely important" end of the scale. The mean ratings were as follows: Site 1 = 8.60; Site 2 = 8.63; Site 3 = 8.77; Site 4 = 8.96. There were no significant differences between these means, possibly because the question and the situation demanded a high rating, and a ceiling effect resulted.

D. Discussion

As predicted, the number of marchers who cited the charity increased as the distance walked increased, at least through the third sampling site. It is possible that these results are due to a sampling artifact because those marchers who were unconcerned with the charity might have dropped out of the walk in the early stages. However, two strong arguments can be made against this interpretation. First, the sampling artifact explanation would predict that there should have been a between-site difference in the reported pledges, since marchers intrinsically concerned with the charity should also be expected to have expended more effort in soliciting pledges. No such differences were found. Secondly, the sampling artifact explanation fails to account for the significant drop in the use of the charity as an explanation from Site 3 to Site 4.

At least three plausible explanations exist for the unexpected decrease at Site 4. Most prominent is the Festinger's (4) postulate that the relationship between degree of dissonance and avoidance of dissonant information takes the form of an inverted U, a relationship since confirmed in studies by Cohen, Brehm, and Latané (3) and Rhine (10). According to the theory, *Ss* suffering intense dissonance find their dissonance-reducing strategies ineffective and start seeking dissonant information as a prelude to a behavior change. While the form of Festinger's postulate relationship does resemble the data obtained in this study, Festinger's explanation does not appear to be applicable. He sees the decrease in dissonance-reducing tendencies as a mechanism which helps the *S* justify a change to a less dissonant behavior. Such a psychological process was unnecessary in the march, however, because Site 4 was the end of the march and a change from the dissonance-producing activity was guaranteed by that fact.

Another possibility is that successful completion of the walk brought with it a sense of accomplishment, a consonant cognition which reduced the necessity of using the charity as a justification. This process, however, was not reflected in the responses of the walkers.

Finally, the marchers may no longer have needed to seek justification of their behavior at Site 4, since the dissonance-producing activity was at an end and they would soon be partaking in the pleasures of a hot bath and a soft bed. Such an explanation is contrary to the commonly accepted view of dissonance theory, in that it suggests that there is less need to justify past behavior than ongoing or future behavior.

Clearly, the presently available data do not provide enough information to allow the choice of any one explanation for the effects. Future research

may allow such a choice because the explanations make different predictions about the form of the curve, and studies can be designed appropriately.

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REACTIONS TO HUMOR AS A FUNCTION OF REFERENCE GROUP AND DOGMATISM*[1]

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SUMMARY

The purpose of the present study was to examine the interaction between a social (reference group) and a personality (dogmatism) variable as it affects behavior (appreciation of humor). Male undergraduates ($N = 152$) were selected for a $2 \times 2 \times 2$ factorial analysis of variance design. The independent variables were (*a*) whether the membership group (university student body) was identified as the *S*'s reference group or not; (*b*) the open or closed mindedness of the *S*s; and (*c*) two types of humor (jokes referring to the university students or control jokes). The dependent variable was the rating of the jokes as to funniness. Results indicated that closed-minded *S*s rated all humor significantly funnier than open-minded *S*s ($p < .01$). Possible reasons for the overwhelming influence of the personality variable are discussed.

A. INTRODUCTION

Teacher: You missed class yesterday, didn't you?
Student: No, not a bit!

In various parts of the country, derogatory, childish jokes focus on members of particular minority groups. In the Southwest, "Aggies" are the targets. Aggie is the nickname adopted by and pertaining to students attending a particular university in Texas. In considering what would enable an Aggie (or a member of any other identifiable group) to

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[1] This article is based on the senior author's Master's thesis at Texas A&M University. An earlier version of this paper was presented at the annual meeting of the Southwestern Psychological Association, El Paso, Texas, May, 1974. The authors wish to thank Betsy Childers and Teresa Rhone for their assistance in collecting the data and Larry Christensen and Walt Stenning for their helpful comments during the study.
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laugh at a joke criticizing his group, two variables seemed promising. The first of these variables is reference (preference) group. Several investigators (5, 6, 10) have found that an individual enjoys humor more when it esteems his reference group and disparages a nonpreferred group. Unfortunately, these studies did not examine the humor responses of people who do not prefer to remain in their membership group. The second important factor to consider appears to be the personality variable of dogmatism. Miller and Bacon (8) discovered that dogmatic *S*s required more time to recognize the humor in a visual stimulus conflicting with their existing beliefs than open-minded individuals. And Wilson and Patterson (12) found that open-minded *S*s were more appreciative of humor which openly expressed sexual or aggressive content, while closed-minded *S*s preferred puns and incongruity jokes.

There has been a growing amount of theoretical and empirical work suggesting that focusing on the interaction of personality and social variables will be the most fruitful framework for understanding behavior (1, 2, 7). Because membership and reference group have often been confounded and personality variables have not been adequately examined in past research on humor, the purpose of the present study was to analyze the interaction of personality (dogmatism), social (reference group), and situational (type of joke) variables in explaining differential responses to humor. It was reasoned that an open-minded individual who can theoretically receive and evaluate information based on its own intrinsic merits would be more able to laugh at a joke disparaging members of a group which he esteemed (vicariously, himself) than would a closed-minded person. Conversely, a closed-minded person should rate hostile jokes directed at a lower status (nonpreferred) figure as more acceptable than should a less dogmatic individual, since such humor would bolster his desired feelings of superiority and reaffirm his belief system.

Specifically, the hypotheses were as follows: (*a*) For *S*s who preferred remaining in their membership group (i.e., reference group), the open-minded *S*s would rate jokes disparaging that membership group significantly funnier than the closed-minded *S*s; (*b*) For *S*s who rejected their membership group as a reference group, the closed-minded *S*s would rate the jokes significantly funnier than the open-minded *S*s; (*c*) For jokes which do not pertain to the membership group, it was predicted that open-minded *S*s would rate these control jokes significantly funnier than the closed-minded *S*s. Stated from a moderating variable analysis approach, reference group and type of joke were predicted to moderate the relationship between dogmatism and appraisal of humor.

B. Method

1. *Instruments*

A 2 × 2 × 2 factorial analysis of variance design was used. The independent variables were (*a*) whether the membership group (Aggies) was the *S*s' reference group or not; (*b*) the open or closed mindedness of the *S*s; and (*c*) two types of humor (Aggie or control jokes). The degree to which students identified the membership group as a reference group was measured by the Aggie scale, specifically constructed for this study. Sixteen items were written referring to university traditions, attitudes toward the university, and participation in university activities. Item analyses on two different samples (*N*s = 63, 27) indicated that 11 of the items significantly ($p < .05$) discriminated in both samples between high and low scorers. These 11 items were retained as the final version of the Aggie scale. *S*s responded to each item on a five-point scale from certainly to absolutely not (range = 11-55). A high score on this scale indicates a person who values his membership in the university student body. Form D of the Dogmatism scale (11) was used to measure the degree of openness of belief-disbelief systems (range = 66-462).

Pretesting of 200 Aggie jokes which had previously been published (4) were performed with two undergraduate samples (*N*s = 20, 28) in order to eliminate jokes receiving extreme ratings of funniness and jokes which might be too familiar to students. On the basis of these results, 20 jokes were selected to be used in the study. Two versions of these 20 jokes were prepared—one where the target of the jokes was an "Aggie" and another comprised of the identical jokes but rewritten to refer to the target as "a guy." *S*s were instructed to rate the jokes on a five-point scale from 1 (not at all funny) to 5 (extremely funny).

2. *Subjects and Procedure*

*S*s were 152 male undergraduates sharing a common membership group; that is, all attended the same large, state-supported university. During a regular class period, the Aggie scale was administered to the students. The following week in class, the *S*s completed the 66-item (Form D) version of the Dogmatism scale with its standard instructions. The third week, *S*s were asked to rate the jokes. In random assignment, half of the *S*s received the Aggie jokes and half received the control jokes. After completing the ratings, *S*s were asked to write on the back of the rating sheet their guesses as to the purpose of the study. Since each of the three phases of the experiment was conducted by a different *E*, not one *S* correctly guessed the

design. At the next available class period, *S*s were debriefed. After the data were analyzed, all *S*s received copies of the results.

*S*s were classified as pro-Aggie or anti-Aggie by a median split of the scores on the Aggie scale. They were designated as open or closed minded by a median split of the scores on the Dogmatism scale. The dependent variable was the ratings of the jokes as to funniness.

C. Results and Discussion

The 2 × 2 × 2 analysis of variance revealed no significant interaction effects. Contrary to prediction, closed-minded *S*s rated all humor (Aggie and control jokes) significantly funnier ($M = 52.87$) than open-minded *S*s ($M = 47.49$, $F = 6.39$, $df = 1/144$, $p < .01$). There was no main effect for the reference group variable or for the type of joke.

In trying to explain why closed-minded people would be more likely to laugh at themselves, it was reasoned that the type of joke used in this study was an important factor. All the jokes were examples of unsophisticated and/or hostile humor. Rokeach (11) proposed that the closed-minded person perceives the world as a hostile and threatening place in which to live. If such is the case, then the hostile and demeaning humor used in the present study was probably consistent with the closed-minded person's belief system and, therefore, more appealing to him. Furthermore, Zigler, Levine, and Gould (13) suggested that humor of moderate cognitive difficulty elicited the greatest magnitude of mirth. Perhaps in the present study the open-minded *S*s were not given a cognitive challenge with such simple humor.

A theoretical explanation for the results can be based on Freud's (3) formulations of humor as a defense mechanism and his distinction between tendentious (aggressive or sexual) humor and nontendentious humor (e.g., puns, play on words). Wilson and Patterson (12) reasoned that their dogmatic *S*s preferred the nontendentious humor because it permitted expression of prohibited impulses in socially acceptable channels. Inspection of the 20 jokes used in the present study revealed that many of them could be classified as puns (e.g., Why did the Aggie cook his coffee in the bathtub? Because the directions said, "Boil it by the pot."). If the closed-minded Aggies rated the Aggie jokes higher because they were not threatened by the "safe" humor, they did so even though the target of those jokes was a person like themselves.

Numerous studies focusing on the interaction of situational and personality effects have found the situation to account for a greater amount of the

variance than the personality variables (9). Why was dogmatism an overwhelmingly significant factor in the present study? Alker (1) posited that relationships between personality and behavior are often severely limited by testing samples which represent a restricted range on the personality variable. Examination of scores on the Dogmatism scale for this group of undergraduates indicated that while the distribution was fairly normal, the mean score was considerably higher (M = 242) than that found in other studies using undergraduates and one standard deviation higher than the average for the normative group used by Rokeach (M = 219). It may be that the availability of a highly dogmatic group to contrast with a low scoring group resulted in a wider range than in most studies, and thus raised the variance accounted for by the personality factor.

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DISSONANCE FROM COUNTERATTITUDINAL ADVOCACY TO LIKED AND DISLIKED TARGETS*[1]

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SUMMARY

Experiment I tested the hypothesis that counterattitudinal advocacy produces more dissonance and attitude change when directed at a liked than a disliked person and more when personal than anonymous. The *S*s were 40 college women. Results on attitude scales confirmed the personal-anonymous prediction ($p < .005$) and disconfirmed the liked-disliked target prediction ($p < .001$). Experiment II used a similar procedure with 68 college women. The hypothesis was that liking for the target interacts with freedom to take back the counterattitudinal message in producing dissonance and attitude change. The predicted interaction occurred ($p < .025$), but still little evidence of greater dissonance from lying to friends than disliked others was found.

A. INTRODUCTION

Festinger's initial statement of the theory of cognitive dissonance (8) held that counterattitudinal advocacy results in dissonance and subsquent attitude change if the *S* freely chooses to engage in the behavior and does so for insufficient justification. In Brehm and Cohen's (1) elaboration, commitment to the counterattitudinal act was highlighted as an important factor. In none of the early studies or theoretical statements was the effect of the act on the target seen as affecting the magnitude of dissonance.

More recently several studies have demonstrated that only if the *S*'s counterattitudinal advocacy causes what Collins (3) has called "aversive consequences" will dissonance result. Three studies have shown, for example, that the audience must be persuaded (5, 10) or at least persuasible (12)

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for the dissonance effect (greater attitude change in the direction of advocacy with less incentive) to be found.

The exact nature of the consequences caused by counterattitudinal acts which are crucial for dissonance arousal have not been elaborated. We do not know, for example, whether the consequences must be detrimental to the *S* or may be harmful only to the target or both. However, more than mere successful persuasion appears to be necessary. Collins and Hoyt (4) found that advocacy to administrators making a policy decision resulted in dissonance, whereas advocacy "to be used in an historical report" did not. Apparently the *S* must think not only that he has convinced someone to hold an attitude which he himself doesn't believe, but also that he has affected an important behavior of the target.

The traditional dissonance paradigm has involved an *S* delivering a counterattitudinal message to complete strangers whom he expects never to see again. However, the aversive consequences from such advocacy may differ when there is a personal relationship between the communicator and target. If so, the traditional paradigm tells us little about the magnitude of dissonance in many natural settings. In uncontrived communication situations the communicator is likely to know his audience, to have positive or negative feelings about them, to be identifiable to them, to expect to see them again, and so forth. Each of these factors may affect the perceived aversiveness of counterattitudinal advocacy and thus affect the magnitude of dissonance. Even in laboratory settings with limitations on generalization to natural situations, we should be able to make a clearer prediction to the "real world" if the communicator and target know each other.

There are several potential sources of aversive consequences which might result from counterattitudinal behavior. For each source it appears that *S*s misleading friends will experience more severe consequences and subsequent dissonance than *S*s misleading disliked targets.

1. *Hurting the target.* An *S* presumably has more concern for a friend's welfare than for an enemy's: i.e., a friend's being misled probably seems a more aversive consequence than an enemy's being misled.

2. *Violation of ethical standards.* It might be more contrary to an *S*'s moral code to deceive one who trusts him (a friend) than to mislead one who lacks such trust. As Daniels and Berkowitz (6) put it, there is a particular obligation to aid (or at least not hurt) a friend.

3. *Convincing the target.* An *S* might plausibly expect his advocacy to be more effective (to produce more consequences) when delivered to a friend than to one who probably neither trusts nor respects him.

4. *Repercussions.* There may be more repercussions for an *S* from mis-

leading a friend. He may be more concerned about loss of a friend's than a nonfriend's trust, affection, and/or respect. However, an enemy might be more likely to retaliate punitively than a friend, if he were in a position of power.

While there seem to be good reasons to expect more aversive consequence when counterattitudinal behavior is directed toward a friend, the exact consequences of the act depend in part on whether the target can identify the source or not. With strangers for targets, public, direct advocacy has usually been found to lead to dissonance, while indirect, anonymous advocacy has been shown not to arouse dissonance (2, 11). However, Collins and Hoyt maintain that sometimes anonymous counterattitudinal messages do lead to dissonance, and they suggest (4) that even private behavior will result in dissonance if there are aversive consequences for which the *S* feels personally responsible.

In the present study we expected, in general, more dissonance from counterattitudinal acts directed at liked persons that at disliked persons, because the consequences are greater from lying to friends. In general, direct advocacy was expected to lead to more dissonance than indirect advocacy because felt responsibility for the consequences would be greater in the former case.

The consequences of a counterattitudinal act seem to differ for public and private conditions. With a friend for a target of public (personal) advocacy, consequences and hence dissonance derive from each of the four sources listed above (e.g., from concern for friend's welfare and from feared loss of a friend's esteem). Anonymous advocacy to a friend leads to dissonance only from sources 1 and 2. There may be some dissonance aroused by lying to a disliked person when one is identifiable and thus subject to retaliation (source 4), but there seem to be no aversive consequences and hence no reason to expect dissonance if the lie told to such a person is anonymous. Anonymous behavior has consequences only for the target, and one presumably is concerned for the welfare only of liked targets. We thus anticipated the following pattern of results in terms of the magnitude of dissonance: personal-liked target > anonymous-liked target > personal-disliked target > anonymous-disliked target.

B. Experiment I

1. *Method*

Forty female *S*s drawn from an *S* pool at Wells College were randomly assigned to one of four treatments formed by factorially manipulating liked *versus* disliked target and personal *versus* anonymous advocacy. One addi-

tional *S* was eliminated for misreading the dependent variable questionnaire.

When each *S* arrived at the experimental room she was told that for a class project the *E* (a student) was testing reading rates. The *E* explained that she was not interested in comprehension and to ensure that the *S* read every word the *S* should strike out all the vowels as she went along. The *S* was then left alone with a boring psychology article for 30 minutes. (During debriefing *S*s confirmed that the task had been very tedious.) During this time the *E* randomly assigned the *S* to a personal or anonymous treatment.

When the *E* returned she handed the *S* a page from a prearranged, randomly ordered stack of papers being careful not to observe what was written. In the like conditions the page said,

> In order for me to carry out the remainder of the experiment it is necessary that I obtain some additional information. At the bottom of this paper, please write down the name of a person that you *like* as a friend. This information will be kept confidential.

In the dislike conditions the word *dislike* appeared in place of like.

When the *S* had completed this request, the *E* explained that the named person would be called and asked to do the same task as the *S*, "to compare her reading rate with yours." The *E* admitted that "the experiment was trivial and probably wouldn't work out," but explained that it satisfied a course requirement for her. She then added,

> I thought it might be helpful to my recruiting if, when I call people, I could tell them that other people have taken the experiment and have said some positive things about it. If people thought they'd have fun it might make them more likely to do it. So I thought I'd ask if people would be willing to write just a sentence or two in the way of a recommendation that I could use in my recruiting.

In the personal treatment she added,

> Then when I call the person that you've named, I'd say (*S*'s name) was in the experiment and she said . . . and then I'd read your recommendation. Do you think you would be willing to do that?

In the anonymous condition she said,

> Then I'll take all the recommendations that people write and make up a composite to use as a standard form when I call the people in the second half of the experiment. Your name wouldn't be mentioned or anything. Do you think you would be willing to do that?

All *S*s agreed to write the recommendation and the *E* suggested that they use words like fun and interesting. When the *S* finished, the *E* told her

there was a "departmental survey" to assess students' opinions about being in psychology experiments. She fetched the survey from a nearby room, gave it to the *S* and left her alone to answer it.

The questionnaire contained one page of general questions and a second page of four questions relevant to the experiment the *S* just took part in. The *S* was asked to rate on 11-point scales how much she enjoyed the experiment, how instructive it was, how much effort she put into it, and how willing she was to repeat her participation in it. These questions constituted the dependent variables.

*S*s were subsequently debriefed. The true purpose of the experiment was explained to them, they were assured that the person they had named would not be contacted, and they were promised and later given a summary of the results.

2. *Results*

Since many previous studies have found *S*s' ratings of enjoyment to be the most sensitive to dissonance reduction (2, 5, 9), this question was regarded as the primary dependent variable.

The results were as follows: liked target-personal, 5.00; liked target-anonymous, 2.30; disliked target-personal, 7.20; disliked target-anonymous, 5.60. Higher numbers indicate more enjoyment.

As expected, direct, personal recommendations produced more positive evaluations than indirect, anonymous recommendations ($F = 9.14$, $df = 1/36$, $p < .005$).

Contrary to expectations, those *S*s recommending the experiment to persons they disliked rated the experiment as more enjoyable than those writing to liked persons ($F = 14.95$, $df = 1/36$, $p < .001$). The difference between like and dislike conditions was significant by contrast between independent means under both personal ($p < .05$) and anonymous ($p < .01$) conditions. There was no interaction ($F < 1$) between affection for the target and conditions of advocacy on this measure.

Comparisons on the other measures showed a similar albeit weaker pattern of results. The personal-anonymous difference was not significant on these measures, although it approached significance on the measure of instructiveness ($F = 3.37$, $df = 1/35$, $p < .10$).[2] On none of these measures was the interaction term significant. *S*s writing to persons they had named as disliked rated the experiment as more instructive ($F = 4.30$, $df = 1/35$, $p < .05$), and they expressed more willingness to do the experiment again (F

[2] Variations in *df* result from the fact that an *S* occasionally failed to answer one question.

= 16.58, $df = 1/36$, $p < .001$) than *S*s writing to liked persons. Only on the ratings of effort did the like-dislike difference not appear.

3. *Discussion*

The finding that *S*s who wrote to someone they named as disliked came to believe this advocated opinion more than those who wrote to someone they had named as liked is quite surprising. Since we know so little about the felt consequences of lying to disliked persons, perceived aversive consequences may occur even when the advocacy is anonymous. However, that there should be *more* concern for the disliked person than for the friend seems improbable. Two other possible explanations of the like-dislike difference occurred to us.

First, *S*s writing to a disliked person might have felt that they had to be more persuasive to recruit that person than *S*s writing to a friend. If so, *S*s in the dislike conditions might have written stronger recommendations and hence ones more discrepant with their prior attitudes. This, in turn, might have aroused in them greater dissonance. To check this possibility, two judges blind as to experimental treatment independently rated each *S*'s message as to how strong a recommendation it contained. Interjudge reliability was .88. Differences were reconciled, and an analysis of variance showed no difference between conditions (all *F*s less than 1).

An alternative possible explanation is that a typical *S* in the like condition knew the person she named well and anticipated being able to talk with her and explain her false recommendation. *S*s who named a disliked person might not have had as much contact with her, might have found it difficult to explain why she had given her name to the *E* and might have expected little forgiveness for the deception. Davis and Jones (7) found that *S*s who expected to talk with the target face-to-face and be able to explain their remarks showed less dissonance reduction by attitude change in the advocated direction than *S*s who expected to have no opportunity to take back their counterattitudinal message.

On the basis of this reasoning a second experiment was designed to explore the difference between the like and dislike conditions of Experiment I. We expected that if *S*s were given a short or a long waiting period before they could talk with the person they had named, an interaction would result: when the counterattitudinal message could be quickly taken back, *S*s in the like, but not the dislike, condition would expect to do so, and like condition *S*s would therefore enhance the rated enjoyment of the task less than *S*s in the dislike condition. If, on the other hand, the message

could not be taken back, we expected that lying to a liked person would be more aversive, arouse more dissonance, and result in more re-evaluation of the task than lying to a disliked person. We also expected that *S*s writing to a liked person would show more dissonance reduction (liking for the task) when they could not take back their recommendation than when they could take it back.

C. Experiment II

1. *Method*

The experiment was run in two stages. Experimenter A drew 30 female *S*s from the *S* pool and randomly assigned them to one of four conditions. Subsequently, Experimenter B recruited 40 female *S*s and they were randomly assigned and equally divided among the four treatments.[3] The method employed by the two *E*s was the same.

The task and introduction were the same as described in Experiment I. *S*s were led to believe the study dealt with reading rates and were asked to strike out vowels in a boring article for 30 minutes. At the end of this time the *E* gave the *S* a paper which requested the name of a liked or disliked person and then she asked for a written recommendation which would be read to the named person along with the *S*'s name. This procedure was identical to the personal conditions of the previous experiment.

While the *S* wrote the recommendation, the *E* drew a card which randomly assigned her to a takeback or no-takeback condition.

a. Takeback. When the *S* finished the message, the *E* said:

> Now, I'll call this person and get her to come in either tomorrow or the next day. It is really important that you not say anything to her until after she participates. Will you promise that you won't discuss it?

The *E* got both an oral assurance and then a written pledge that the *S* would not discuss the experiment with the named person for two days.

b. No-takeback. The *E* said to *S*s in this condition that the experiment would not be finished for several months. The *S* was asked for an oral and then a written pledge that she would not discuss the experiment with the target until the specified time, several months away.

Each *S* was then sent to a specified location where she filled out a "departmental survey" on student reactions to being in psychology experiments. The crucial questions asked on 11-point scales for ratings of enjoy-

[3] The authors wish to thank Dorli VanLengen and Elizabeth Ulsh for acting as Experimenters A and B.

ment, instructiveness, and willingness to participate in the same experiment again. When the *S* finished, the *E* asked her to answer another questionnaire which asked on seven-point scales how well she knew the person she had named in the experiment and how easily she could explain to this person why she had recommended that she be in the experiment. *S*s were then carefully debriefed and promised a summary of the results.

2. *Results and Discussion*

Two *S*s from Experimenter B's sample were eliminated for failing to comply with the request for a written recommendation. Each of them instead used the opportunity to express her suspicion of the experiment. No other *S*'s expressed suspicion. Sixty-eight *S*s remained in the sample distributed as follows: Experimenter A, like-takeback, 7; like-no-takeback, 7; dislike-takeback, 7; dislike-no-takeback, 9; Experimenter B, like-takeback, 10; like-no-takeback, 9; dislike-takeback, 10; dislike-no-takeback, 9.

The data were analyzed by an unweighted means analysis of variance with the use of differences in *E*s, time, etc. as one factor (replications) according to the method recommended by Winer (13). The replication factor showed no significant main effects or interactions.

The results on ratings of enjoyment were as follows: like-takeback, 5.50; like-no-takeback, 6.88; dislike-takeback, 7.09; dislike-no-takeback, 5.68. Higher numbers indicate more enjoyment.

The results on ratings of enjoyment confirm the predicted interaction ($F = 6.43$, $df = 1/60$, $p < .025$). When *S*s believed they could talk to the target if they wished to, *S*s who lied to a liked person enjoyed the experiment less than *S*s who lied to a disliked person ($p < .05$ by contrast between independent means). This difference replicates the differences found in Experiment I and reflects less dissonance-reducing attitude change in the like condition. When *S*s could not take back their counterattitudinal advocacy the pattern of results reversed, but the difference in the no-takeback treatment between liked and disliked target conditions was not significant ($F = 2.27$, $df = 1/60$, $p < .20$).

It was also expected that when writing to a friend, *S*s who could not undo their message would rate the experiment as more enjoyable than *S*s who could undo their message. This difference between takeback-like and no-takeback-like conditions was in the expected direction but fell short of significance ($p < .10$).

The pattern of results was the same for ratings of instructive (F for the interaction $= 2.49$, $df = 1/59$, $p < .20$) and for ratings of willingness to do the experiment again (F for the interaction $= 3.87$, $df = 1/59$, $p < .10$).

We expected that *S*s who wrote to friends would anticipate undoing their lies if given permission to do so because they knew the targets well. Ratings of how well they knew the target person showed *S*s who named a liked person knew this person better than *S*s who named someone they disliked ($F = 12.56$, $df = 1/59$, $p < .001$).[4]

Ratings of how easily *S*s could explain to the target why they had recommended she be in the experiment did not meet an F max test for homogeneity of variance. Variance was significantly higher in dislike than in like cells (F max = 44.098). In retrospect the question seems ambiguous and complex especially for dislike-condition *S*s. They might be able to explain easily to the target the message they wrote but not why they had named her when a disliked person was requested. However, tests for simple effects (13) showed that people writing to a liked person said they could explain themselves to her more easily than *S*s writing to disliked persons both in takeback ($F = 10.25$, $df = 1/33$, $p < .005$) and in no-takeback conditions ($F = 21.69$, $df = 1/32$, $p < .001$).

D. General Discussion

While it is clear that the path of dissonance reduction differed when the communicator misled someone she liked from when she misled a disliked person, there is little indication that misleading a liked person was more aversive and more dissonance producing than misleading a disliked person. When required not to discuss the lie with the target, *S*s who wrote to liked and disliked persons did not differ significantly in dissonance reduction through attitude change.

While the magnitude of dissonance may not have differed in the liked and disliked target conditions, informal comments from *S*s suggest that the source of dissonance may have been different for the two groups. *S*s writing to liked targets seemed concerned about the deceptive recommendations they wrote. *S*s asked to name someone they disliked were concerned about their responsibility in *naming* her for the experiment and were less worried about the message. Perhaps as we hypothesized there is an ethical code against lying to trusting friends. But perhaps there is another code against getting a disliked person involved in something for no reason other than disliking her. While this explanation is purely speculative, it

[4] Within condition correlations between ratings of enjoyment of the experiment and how well they know the target might be expected to be significantly negative: i.e., those who wrote to a well-known target might have anticipated reducing dissonance by explaining away their deception rather than by changing their attitudes in the advocated direction. Within condition variances on ratings of how well they knew the target were, however, so low that all correlations were zero-order.

does fit with the apparent dissonance produced in Experiment I when *S*s misled a disliked target indirectly, anonymously, and hence without fear of retaliation.

In conclusion, if as we originally thought the ethical code is more severe for deceiving a friend, if there is greater concern for the welfare of people one likes, if one expects to be especially effective in deceiving a friend and has more to lose from doing so, there is little evidence of it here. It is quite clear that under most ordinary circumstances in which a communicator would be free to talk to the target again, counterattitudinal remarks will produce more lasting dissonance effects when made to disliked persons than when made to friends. In fact, misleading friends will probably not change the communicator's attitude; he will expect simply to undo the lie. Misleading someone he dislikes will probably lead to attitude change even when he can remain unidentifiable.

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YOUNG ARABS IN ISRAEL: SOME ASPECTS OF A CONFLICTED SOCIAL IDENTITY*

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SUMMARY

The social identity of young Arabs in Israel was conceptualized as a set of subidentities which included the national (Arab), civic (Israeli), religious (Moslem, Christian, Druze), familial, and occupational subidentities. Forty male and female Arab high school and university students of three religious denominations were asked to express themselves on the extent to which each of those subidentities was important and attractive to them, and on the relative potency of some of them. The national and civic subidentities were found to be, respectively, most and least important and attractive. Students dealt with conflict between the national and civic subidentities by denial and differentiation. Signs of a conflicted and alienated social identity were a lack of involvement in the State, unrealistic and frustrated occupational aspirations, a declining interest in religion and family, and the beginning of estrangement from non-Israeli Arabs.

A. INTRODUCTION

The notion of *subidentities*, as conceptualized by Miller (15, pp. 670-698), represents a convenient approach to the analysis of social identity: i.e. "the individual's major role and social-type categorizations" (7, p. 118). It has the merit of calling attention to a level of *identity* intermediate between a core region of self concerned-with knowing, organizing, and defending the person, and a periphery of acts and appearance presented to others and known to them (*public identity*).

The social identity, as expressed in subidentities, arises from the continual interplay between an *active* core of self and a *reactive* public identity. Subidentities are internalized and personalized social roles. A theory of

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subidentities inquires into their formation and change, into a characterization of their several dimensions, and into their reciprocal relations. It also assesses the meanings attached to the domain of their reference.

In several related studies, Herman and his colleagues have explored the ethnic subidentities of Israeli Jewish (10, 11, 16), Israeli Arab (13, 14), and American Jewish (5, 9, 19) *S*s. Usually, just two subidentities were juxtaposed, the Jewish and Israeli, Arab and Israeli, or American and Jewish.

The study of ethnic identity in this way has yielded valuable insights into the meaning of ethnicity in a number of settings, but could benefit from an extension to other subidentities. One cannot really know what place to assign the *ethnic* subidentity until its relation to other subidentities has been clarified. What it means to be an Israeli Arab in a given set of circumstances may depend very much on the meaning he attaches to his religious affiliation, his family life, and his occupational status. One need only consider what may happen to an Arab nationalist cut loose from family, religion, and civic responsibility to realize the importance of considering a representative set of subidentities.

The subidentities by way of which the present paper scrutinizes the young Israeli Arab are only some of the ones that might have been considered. They are his national, civic, religious, familial, and occupational subidentities and refer to involvement in the role of an Arab, a citizen of Israel, and a member of his religion, family, and occupation.

The Arab Israeli minority has certain characteristics which set it off from other minorities (4, 17). To begin with, it has only been a minority since 1948 and is affiliated with fellow Arab communities which in a large number of neighbouring countries form strong majorities. Being "enemy-affiliated," it is the object of suspicion to Jews in Israel. Arabs in Israel also resent being led to modernization by Jews rather than by their own leadership most of whom left the country in 1948.

The powerful and contrary pressures on Israeli Arabs, as Israelis and as Arabs, in the presence of prolonged hostilities between Israel and the Arab states, surely raised their national and civic awareness to high levels, as compared to that of other subidentities. It is the purpose of the present pilot study to explore in a preliminary way the absolute and relative importance and attractiveness of these various subidentities.

B. Method

The sample of 40 young Arabs, all born since the establishment of the State of Israel, was chosen so as to give fair representation to level of education, religious affiliation, and sex. Half of the students came from the

University of Haifa and half from a large secondary school in Haifa. *S*s were evenly divided between the sexes and among the Moslem, Christian, and Druze religions, except that there were no Druze girls. Because of a prevailing traditional attitude among Druze villagers, at the time of the study in 1972 no Druze girls were enrolled at either the university or the secondary school.

The university students were approached as they passed through the hall of the University of Haifa. The high school students were picked at random from a list of seniors. *S*s were told that they were participating in a study of Arab identity and assured of anonymity. Three of those approached, a high school student and two college students, preferred not to participate. When pressed by the interviewer, a Christian Arab, to explain their refusal, they replied evasively. One said: "You will understand me," intimating that the assurance of anonymity was insufficient to allay his suspicions.

The interview schedule, a structured instrument with open-ended follow-up probes, was taped and later transcribed into *spoken* Arabic to avoid misinterpretation likely to arise from stylistic variance between spoken and literary Arabic. The partly closed interview schedule systematically covered importance, attractiveness, and relative potency of the national, religious, civic, familial, and occupational subidentities. The results, some of which are reported in the present paper, are summaries from the coded protocols with occasional quotations to clarify the meaning of responses. The considerable number of replies coded as "other" represents evasive, unclear, and irrelevant statements, or a few cases in which no reply was given at all. Most respondents, once put at their ease, seemed to regard the hour- to two-hours-long session as a welcome opportunity to get things "off their chest."

The interviewer believes that *S*s were sincere in their statements but his being a Christian Arab may have induced some of them to present themselves in an appropriate manner. On the whole, though, confidence in the interviewer appears to have removed the subtle social control described by Peres and Davis (17), by which the Arab community prevents the expression of opinions that exceed the limit of being pro-Arab without being anti-Israeli or pro-Israeli without being anti-Arab. Many of the opinions expressed were quite critical of the State of Israel.

C. Findings

Two groups of questions inquired into the importance and attractiveness *S*s attached to their being (*a*) Arabs; (*b*) Moslems, Christians, or Druze; and

(*c*) Israelis. Responses have been broken down in Table 1 by religious affiliation alone, since neither the sex nor age classification yielded significant differences. Differences between religious groups were evaluated for significance by chi square (χ^2). Because of the small number of cases, probabilities ought to be regarded with caution.

1. *National Subidentity*

Being Arabs was important and attractive to all, but comments showed certain qualitative differences among religious groups. Said a Moslem: "Certainly it is important to me to be an Arab. My parents are Arabs, my language is Arabic, and quite naturally I am proud to be an Arab." The Christians' Arab nationalism is more conscious and deliberate: Said a Christian, "I feel that in some sense I am more of an Arab than the Moslems. After all, they can always fall back on their religion." What he appeared to be saying and what other Christian Arabs made more explicit when questioned further is that Arab nationalism does not flow quite as readily from their own past and traditions as it does for Moslems. "The Moslem finds it easy to be proud to be an Arab. To us it is a responsibility, one we must work at and work for."

The Druze affirmed the importance being Arabs has for them, but they were slightly more restrained about it, perhaps in view of the efforts made by the State to wean them away from Arab nationalism. Said one: "When others call me Arab, I accept this without resistance. It is not always important to me to *show* that I am an Arab, but it is important for me to *be* one, as this is part of my heritage." It is not to be ruled out that the identity of the interviewer encouraged the Druze to present themselves as Arabs. They are, as a minority of Druze Arabs among other Arabs, in a delicate position, as some acquaintance with their hazardous history makes it easy to understand.

These comments have referred to the *importance* of being Arabs. On the dimension of *attractiveness* there was only one negative reply and five evasive comments, three by Druze. There was overwhelming satisfaction with the national subidentity.

2. *Religious Subidentity*

With respect to the religious subidentity, importance and attractiveness went their separate ways. Almost all expressed satisfaction in their religion, but few attached importance to it, least of all the Druze. The ties to religion were sentimental, but apparently not much more than that. "Is-

TABLE 1
RELATIVE IMPORTANCE AND ATTRACTIVENESS OF NATIONAL, RELIGIOUS, AND CIVIC SUBIDENTITIES (*N*s)

Religious affiliation	National			Religious			Civic		
	Yes	No	Other[a]	Yes	No	Other[a]	Yes	No	Other[a]
				Importance					
Moslems	14	1	1	6	7	3	1	12	3
Christians	11	3	2	5	8	3	3	9	4
Druze	4	1	3	1	5	2	2	3	3
Total	29	5	6	12	20	8	6	24	10
				Attractiveness					
Moslems	13	1	2	9	1	6	3	8	5
Christians	16	0	0	16	0	0	7	6	3
Druze	5	0	3	3	0	5	1	1	6
Total	34	1	5	28	1	11	11	15	14

[a] Includes indecisive, evasive, and no replies.

lam," remarked a Moslem student, "is a good and straightforward religion, but at this stage, religion will have to play a secondary role. There are more important issues." A Christian explained that "to be a Christian is not a dominant fact in my life, though it does have a strong influence on my thinking." Another concurred that "Christianity has beautiful customs and fewer restrictions than Islam, especially for women." The Druze were on the whole satisfied with being Druze, but discounted their religion's effect on their lives. "How can it be important to me to be of Druze religion? I hardly know what it is all about." The secrets of the Druze religion are in fact kept from laymen and outsiders alike.

Religion, then, was reduced to a rather innocuous pastime of the clergy and the old. It was well enough, though differentially, liked ($\chi^2 = 13.74$; $p < .05$), a picturesque part of tradition, but not the object of much reflection, practice, or faith. This impression is supported by an unpublished community study conducted by the Anglican Church in the Arab-populated Vadi Nisnas of Haifa. Adult respondents there claimed that religion was a stronger force among their parents and a weaker one among their children than among themselves.

3. *Civic Subidentity*

The civic subidentity elicited negative and evasive comments from many members of all denominations with Druze respondents somewhat less negative than Moslems and Christians ($\chi^2 = 9.57$; $p < .05$). Also, to be Israeli had little importance to most of them. They were uninvolved, indifferent to

whatever privileges and obligations of citizenship were theirs. When confronted with the blunt question on whether it mattered to them to be Israelis, most replied with a simple and unqualified "no." But, as will be shown below, when the questioning became more indirect, the Israeli subidentity turned out to be less unimportant than it would at first appear. Reactions to a question about the attractiveness of Israeli status were more voluble: "Israel is the enemy of my people. Therefore it is my enemy, too. How, then can I be satisfied with being Israeli?" Or, "My being an Israeli was forced on me. True, I did not become an Arab by choice either, and was born that way, but my being an Israeli was forced on me in full knowledge and against my will." Those 11 respondents who claimed to be satisfied with being Israelis cannot be said to have been particularly enchanted, either. Usually, they pointed to favorable living conditions, health insurance, and social security all of which are theirs. They do enjoy the fruits of the welfare state.

Favorable evaluations must be seen in the light of an ambiguity in the meaning of Israel. "What do you mean by Israel? Are you thinking of the State and its government? Or are you thinking of the country, my homeland (*watan*)? I love my homeland which today is called Israel, before was called Palestine, and tomorrow may be called something else again. What matters is that it is my homeland." Many have not yet accepted the State as a fact, but regard it as just one more passing phase in the country's long and checkered history. Druze respondents are again less committed than others. Most of their responses are neither positive nor negative.

a. Salience. None of this boded well for the civic subidentity. But may it not be that the heroic, abstract, far-away Arab nationhood was naturally more appealing than the unexciting, concrete, here-and-now Israeli citizenship with all the obligations of taxes, bureaucracy, and the like? How would *S*s respond to a meeting with real-life non-Israeli Arabs? To find out, they were called upon to imagine meeting Israeli Arabs like themselves and also non-Israeli Arabs from the occupied areas and to state whether they would feel like Israelis in either of those confrontations. This task was not a merely hypothetical one in that most of them had met Arabs from the occupied areas.

Table 2 shows that the shift to meeting non-Israelis, a shift in "ground," would indeed make the "figure" of Israeli status more salient and affect its meaning. Thirty-one out of 40 said they felt "Israeli" when meeting non-Israeli Arabs, with no difference between members of religious groups. As one put it:

TABLE 2
SALIENCE OF CIVIC SUBIDENTITY

Religious affiliation	No. of Israeli Arabs reporting, "I feel Israeli when meeting Israeli Arab in Israel"			Non-Israeli Arab outside Israel"[a]		
	Yes	No	Other[b]	Yes	No	Other[b]
Moslems	5	8	3	13	3	0
Christians	6	8	2	11	3	2
Druze	4	2	2	7	0	1
Total	15	18	7	31	6	3

[a] The question was so phrased that reference was to non-Israeli Arabs in the West Bank areas occupied since 1967.
[b] Includes indecisive, evasive, and no replies.

> The Arabs there make us feel different. Our customs are no longer the same as theirs. We can recognize the gap separating their way of life from ours. It is really possible to note the effect of 20-plus years of life in Israel. . . . Besides, they talk to us like strangers, like people from that country "over there."

b. National vs. civic subidentity. Confronted with a direct choice of rejecting the Arab world or Israel, or of belonging to one of the two, *S*s had no trouble in deciding what to reject, but did experience difficulty in deciding where they belonged. None rejected the Arab world, but not all would prefer to live there, again least of all the Druze (see Table 3).

The interviewer reports that the question on where to belong placed respondents into real quandary. Many claimed never to have thought of it in terms of mutually exclusive choices. Abelson (1) has analysed mechanisms of resolving conflict involving dissonant cognitive elements. A tendency to avoid conflict by not thinking about its elements simultaneously is called "denial." It is particularly characteristic of people who function at rather concrete levels of personality (8).

The choice between belonging to the Arab world or to Israel split Moslems and Christians into three camps ($\chi^2 = 14.04$; $p < .01$). A few categorically decided for the Arab world: "It is a matter of hopes, history, mentality, and culture. I can only belong to the Arab nation." Others opted for Israel, though the meaning of Israel, State or motherland, remains in doubt: "Reality obliges me to be part of Israel and its legal structure, every change of which affects me. Changes in the Arab world have no effect on me." The majority could not decide, and pressed into a decision, resolved the apparent contradiction by making a distinction between levels of discourse. This represents a second type of conflict resolution called differenti-

ation. "Emotionally, I identify with the Arab world, but in fact every Arab in Israel lives here and is tied to life here." Emotionally, ideologically, it was the Arab world; factually, it was Israel.

Druze *Ss* were in a position apart on the question of where to belong. None rejected the Arab world, but four would not reject Israel either. Six out of eight stated that they belonged to Israel. Their greater involvement in the State, including service in the armed forces, and a certain isolation in the Arab world, tipped the scales in this instance. The Druze identified with Israel without rejecting their Arab affiliation.

4. *Familial Subidentity*

Data on the importance and attractiveness of the family were gathered, but in view of their general positiveness will not be reported. Below, family strength will be assessed in relation to occupational aspirations.

5. *Occupational Subidentity*

In asking students what they wished to do professionally, one inquired into their *anticipated* occupational subidentity. The level of aspirations in the present sample was high, unrealistically high in view of what high school and college graduates actually do. Among the 20 high school seniors 11 wanted to be physicians. Among the 20 college students six more wanted to study medicine, three wanted to go into politics, and another six into professions other than education. Only about a third aimed for education, while a recent survey of about 100 Arab students at the University of Haifa indicated that 70% of those gainfully employed were in fact in education, with little chance to move into other professions after graduation.

Obviously, students were dimly aware that they might not be able to realize their objectives. As a result they voiced bitter complaints about

TABLE 3
RELATIVE POTENCIES OF NATIONAL AND CIVIC SUBIDENTITIES

Religious affiliation	No. of Israeli Arabs reporting, If confronted with choice: Would rather be "Arab"	"Israeli"	Undecided	Ready to renounce being "Arab"	"Israeli"	Undecided
Moslems	9	1	6	0	15	1
Christians	8	3	5	0	14	2
Druze	1	6	1	0	4	4
Total	18	10	12	0	33	7

discrimination against academically trained Arabs. Remarks such as "to be an Arab in Israel reduces your chances of getting the job you want," and "I choose what I am permitted to choose," were common. Complained one: "Your question of occupation *choice* is meaningless."

Occupational choice often clashed with other life goals. *S*s were therefore asked to imagine that obtaining the job of their choice would involve, in turn, defying their family, denying their religion, leaving the country, or forgetting that they were Arabs, and to state their preference in each case. An analysis of preference in terms of the present conceptualization yielded a hierarchy of subidentities (Table 4).

The strongest competitor of occupational choice was national identity. Only two *S*s, a Christian and a Druze, were willing to forget they were Arabs in order to attain their professional objectives. The three other subidentities were about equal in strength to the occupational one. The question of whether *S*s would defy their families to get the job of their choice is the one issue on which there was a split along lines of sex. Thirteen out of 24 males, but only one out of 16 females, declared for possible defiance.

None of the constituent tables of contingency yield significant differences between members of different religious groups. Yet, cumulatively, it ap-

TABLE 4
OCCUPATIONAL *vs.* RELIGIOUS, FAMILY, CIVIC, AND NATIONAL SUBIDENTITIES

Subidentity	Number choosing Moslems	Christians	Druze	Total
	Occupational vs. *religious* ($X^2 = 4.12$, $p > .05$)			
Occupational	5	8	1	14
Religious	8	7	5	20
Other	3	1	2	6
	Occupational vs. *family* ($X^2 = 5.20$, $p > .05$)			
Occupational	3	6	5	14
Family	11	9	2	22
Other	2	1	1	4
	Occupational vs. *civic* ($X^2 = 8.15$, $p > .05$)			
Occupational	3	5	5	13
Civic	5	7	3	15
Other	8	4	0	12
	Occupational vs. *national* ($X^2 = 3.88$, $p > .05$)			
Occupational	0	1	1	2
National	15	14	5	34
Other	1	1	2	4

Note: "Other" includes indecisive, evasive, and no replies.

pears that Christians assigned more weight to the occupational subidentity than their peers, especially when it is taken into account that there were no girls in the Druze sample.

D. Discussion

As hypothesized, the Arab national subidentity indeed dominated the social identity of the young Arabs interviewed, but somewhat unexpectedly, the civic one did not. To be an Israeli, that is, was a matter of negatively tinged indifference. The prolonged struggle between Israel and the Arab states did make these Arabs more aware of their being Arabs than they probably were at one time, but it did not make them more Israeli, at least not on the surface.

In spite of its claimed lack of importance, the civic subidentity was in sharp conflict with national identity whenever *S*s were challenged to declare between them. *S*s were not ready to reject the Arab part of their selves, but neither were they quite ready to renounce the Israeli here-and-now. Israel, though disliked as a political entity, is after all the country of their birth and one in which many of their families have lived for centuries. It offers material advantages, too, and previous research has shown that most young Arabs seek social integration into Jewish Israeli society, even if about half believe they do not have much of a future economically (12). Finally, renewed contact with Arabs in the areas occupied by Israel after 1967 was not always as satisfying as hoped and expected [see also Cohen (4)].

It is most interesting to note the mechanisms by which the Arabs of the sample dealt with contradictions between the national and civic subidentities. Denial, that is an unwillingness to think about the two elements of conflict at one and the same time, was the strategy most commonly adopted as long as no one posed the issue of choice. This strategy may be well suited to the Arab personality (18), though the very notion of an Arab personality has been challenged (3). When urged to make a choice, most subjects tended to differentiate between the emotion-arousing dream of Arab nationhood and the unpleasant, but bearable, day-by-day reality of Israeli citizenship.

Differentiation is a more sophisticated mode of conflict resolution than denial, but more constructive yet would be a strategy of transcendence, the most advanced suggested by Abelson (1). Transcendence would involve the development of superordinate goals to both Arab and Jewish Israelis and a concept of civic identity broad enough to accommodate and inspire all of

the state's citizens. Obviously, conflict resolution by transcendence calls for a change of attitudes among both Jews and Arabs, concerted soul-searching, and peace between Israel and the Arab States.

Among other foci of social identity, there was a sentimental attachment to religion and family, but neither appears to be a match for the national subidentity. The decline in religious and family ties becomes more serious as one notes its association with negative feelings toward the State and frustrated occupational strivings. An individual alienated from all but the symbols of national identity could well be on the way to extremism in its various forms.

The young Arabs complained about job discrimination. While there may be some basis for this in security-conscious Israel, failure to achieve professional goals cannot be ascribed to discrimination alone. Competitive examinations administered by universities tend to show that graduates of Arab high schools are inadequately prepared for Israeli institutes of higher learning. Their performance in college, once admitted, too, is not always commensurate with stated aims. There will have to be far reaching changes in the Arab educational system, with the help of the State, to diversify and improve professional opportunities.

The young Arabs' occupational aspirations, so unrealistically high in view of actual opportunities, must be interpreted in part as a hedge against anticipated failure. Setting one's sights very high is one way to cushion the blow of failure once it strikes, for to fail at an exceedingly difficult task is really not failure at all. Also, it is always more comforting to blame others, especialy when there is some basis for this, than to accept responsibility for one's own shortcomings (2).

In sum, the social identity of the young Arabs in our sample revolved precariously around an injured national self, unrealistic occupational aspirations, and weakening ties to religion and family. Civic pride was completely truncated except for a strong attachment to the *watan* which is perhaps best viewed in terms of the dominant national subidentity. Further work, employing larger and more representative samples, is needed to validate these tentative conclusions and to explore behavioral implications.

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APPROVAL SEEKING, SITUATIONAL PRESSURES, AND THE WILLINGNESS TO ADMINISTER SHOCK TO A VICTIM*

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SUMMARY

This article reports the results of two studies relating vulnerability to situational pressures, and intimacy of *S*-victim relationship to laboratory aggression. In study 1, 58 *S*s completed the dogmatism scale and participated in an experiment which manipulated the *S*-victim intimacy. Study 2 was in two parts with 53 *S*s in part 1 completing a locus of control scale, and 46 *S*s in part 2 completing measures of self-esteem and approval seeking. *S*s in both parts then participated in a Milgram type experiment on laboratory aggression. The results showed that dogmatism, self-esteem, and approval seeking are related to the level of shock administered to a victim in the teacher-learning paradigm ($p \leq .05$). Intimacy of the *S*-victim relationship also predicted the level of shock. The studies lend support to the importance of vulnerability to situational pressures in the prediction of laboratory aggression. The first study also indicated the greater importance of situational pressure (*S*-victim intimacy) than vulnerability measured by the dogmatism scale.

A. INTRODUCTION

Laboratory studies of aggression using the paradigm—if X tells Y to hurt Z, under what conditions will Y obey—were initiated by Milgram (6, 7). In these studies, the *E* asked *S*s to administer increasingly higher voltage to a learner in a learning experiment. Unknown to the *S*s, the learner was actually a confederate of the *E*. These studies focused on obedience processes and the effect of various situational variables, such as the physical proximity of the victim and the *S*. These situational pressures proved

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effective in predicting the levels of shock an *S* was willing to administer to an innocent victim. In general, the closer the proximity, the lower the levels of shock administered.

The question of whether personality affected aggressive behavior was partially investigated by Elms and Milgram (1) in their 1966 study. They administered the California F Scale to *S*s who were previously determined to be obedient or defiant in administering shock. The obedient *S*s were found to score higher on the F Scale. Larsen, Coleman, Forbes, and Johnson (5), however, found no differences in shock levels administered between *S*s who scored high or low on five scales measuring various aspects of aggression. On the other hand, various situational pressures created by modeling or conformity pressures were effective in creating high levels of shock administration. Larsen *et al.* suggested that perhaps aggressive tendencies were not measured properly, or they were not relevant to laboratory aggression. The predominant variable was considered to be conformity to the situation which created high levels of shock administration.

Consequently, personality variables which make the individual more susceptible to situational pressures might prove efficacious predictors of laboratory aggression. This may partially explain the results of the Elms and Milgram (1) study. Authoritarianism is characterized by conformity, especially to those deemed legitimate authority figures. Rokeach (8), however, pointed out that the F Scale is confounded by ideological factors, and might therefore more properly be termed a measure of right wing authoritarianism. Rokeach's (8) dogmatism scale measures general authoritarianism independent of ideological position. It is the structure of belief systems, whether open or closed, not the content which characterizes general authoritarianism. Larsen and Schwendiman (4) indicated moderately strong relationships between dogmatism and low self-esteem, and between dogmatism and more positive attitudes toward perceived legitimate authorities (2); and Schwendiman, Larsen, and Cope (10) showed dogmatism was related to the favoring of "hawkish" political candidates. On the basis of these relationships, it was hypothesized that *S*s high in dogmatism would show more situational conformity, reflected in the administration of higher levels of shock. Also on the basis of the relationship between dogmatism and self-esteem, we expected a negative correlation between self-esteem and level of shock.

Another personality variable which might make an individual more

susceptible to situational pressures is the perceived locus of control of behavior, whether external to the person or internal. Rotter (9) developed a scale to measure locus of control. External individuals are characterized by a faith in fate, luck, heredity, and other external factors as determinants of behavior. This outlook should make it easier to abandon personal responsibility for behavior and overcome moral scruples in hurting another person. Consequently, it was hypothesized that external *S*s would administer higher levels of shock when compared to internal *S*s.

Larsen (3) suggested that several emotional responses may be made to frustration, dependent on the type of goal frustrated. Two broad classes of goals are approval seeking and personal identity goals. One result of the study showed that *S*s high in approval motivation tended to show less direct anger than those *S*s high in personal identity motivation. At the same time, approval seeking *S*s showed more rejection of other groups on the Bogardus Social Distance Scale. In other words, they showed higher levels of rejection under safe conditions. Since compliant aggression in the laboratory is "safe," and since refusal to participate according to the demands of the situation may carry possible rejection from the *E*, it was predicted that high approval seeking motivation would be correlated with the level of shock administered in a teacher-learner laboratory study.

The expectancy that these personality variables are related to aggression is based on the assumption that they make the individual more vulnerable to pressures from situational variables. This is an acknowledgement of the predominance of situational pressures. One strong pressure is derived from seeing the effect of one's behavior on another person. In Milgram's (7) study the "psychological distance" between victim and *S* was manipulated by varying the immediacy and proximity of the *S*. This moderated the ability of the *S* to empathize the consequences of his behavior. In other words, the shorter the psychological distance, the greater the ability to empathize, and consequently the stronger the inhibitions against aggression. It is common knowledge that it is easier to drop a bomb from a high altitude bomber than to stick a bayonet into some man's stomach.

Are there ways of decreasing the psychological distance so individuals will be inhibited even in the presence of physical distance? The most obvious variable is the relative intimacy between victim and *S*. It was hypothesized that intimacy produces empathy and reduces psychological distance, leading to an inhibition of laboratory aggression. This problem was investigated in the first of three studies.

B. Study 1: The Effect of General Authoritarianism and Subject-Victim Relationship on the Subject's Willingness to Administer Shock

This experiment investigated the *S*'s willingness to administer shock as a function of dogmatism and intimacy. Intimacy was manipulated by varying the length and content of conversation between the *S* and victim prior to the experiment. We hypothesized that as intimacy increased, shock level would decrease. Following Larsen *et al.* (5) we attempted to minimize the effect of the *E* on the *S*. The *E* was not present in the room with the *S* during the learning trials and no direct command to administer punishment was given.

1. *Method*

a. Subjects. The *S*s were Oregon State University students enrolled in a course in General Psychology, Fall, 1972. Fifty-eight of these *S*s completed the dogmatism scale, and participated in the experiment. They all volunteered after being offered credit toward their grade.

b. Instruments. All *S*s completed Rokeach's (8) short form dogmatism scale.

c. Apparatus. Two rooms were used for the experiment. The first room contained the shock apparatus. On this apparatus was a dial labeled from 0 to 390 volts. This dial was subdivided into three sections labeled "slight shock," "moderate shock," and "Danger: Severe Shock." The second room, in which the learner was seated, was equipped with a machine to communicate the learner's responses to the *S*. The machine also recorded the *S*'s choice of voltage level. [For a detailed description of the apparatus, see Larsen *et al.* (5).]

d. Procedure. The *S*s were divided into four groups of varying intimacy level. Intimacy was defined by the number of minutes the *S* spent together with the victim prior to the experiment (0, 3, 6, and 12 minutes). During the 0, 3, and 6 minute conditions, the victim directed the conversation toward the *S*'s classes and school major. In the fourth group, we increased the length of the conversation between the *S* and victim to 12 minutes. In addition, in the 12 minute group, the victim always met the *S* with a handshake and addressed the *S* by his name three times during the time they spent together. During nearly the entire conversation (10 of the 12 minutes) the victim engaged the *S* in direct eye contact. The victim directed the conversation toward the *S*'s family, hometown, high school, and his major. Leading questions of the following type were asked to initiate

conversation: "What are you doing in school? What high school did you attend? Where are you from? What is your family like?" The questions were designed to lead gradually from less to more intimate conversation. No strict format was followed, since the *S* responded on his own volition to the questions. The *E* was not present in the room during these conversations.

Upon arrival, the *S* was taken to the room with the shock apparatus and given the following instructions:

> This is a learning experiment to test the effect of punishment on learning. What we have designed is a two person experiment involving you as the teacher, and a learner who is a volunteer and is being paid for his services. I will introduce you to him in a minute.
> The learner is given a series of 60 paired comparison questions, and his answer, right or wrong, is flashed up here. Your job as the teacher is to administer various levels of shock after each wrong answer. There is no preferred response. One of the questions we are trying to answer is what level of shock will best facilitate learning, so feel free to experiment with any level of the dial. Remember, these levels of shock may cause pain, but no permanent tissue damage.

The *S* was taken into the second room and introduced to the learner. Following the introduction, the *E* attached an electrode to the wrist of the learner in the presence of the *S*. To explain the delay in beginning the experiment, the *E* announced, "I'm having some trouble with the equipment this afternoon. Please be seated and I'll return in a few minutes." This procedure was used to initiate the various conditions of intimate conversation between the *S* and victim. Except for the above variations, the procedures of the study were identical to the control procedure in the Larsen *et al.* study (5). As in the case of the previous experiments, the victim was an experimental collaborator and was not shocked. After the introduction to the apparatus, the *S*s were asked if they were familiar with this type of experiment. The few *S*s who admitted that they had read or otherwise knew the experimental obstacle were promptly debriefed and excused. At the conclusion of the experiment all *S*s were debriefed. In the debriefing all *S*s verified that they believed the experiment rationale.

2. *Results and Discussion*

Table 1 shows the shock level means for the various experimental conditions. Results of the two-way analysis of variance show significant effects for intimacy ($F = 3.24$, $df = 3, 50$, $p \leq .05$) and for the interaction between intimacy × dogmatism ($F = 4.95$, $df = 3, 50$, $p \leq .05$), but a nonsignificant effect for dogmatism ($F = 1.60$). High dogmatic *S*s shocked at higher levels, with exception of the high (12 minute) intimacy condition,

TABLE 1
SHOCK LEVEL MEANS FOR GROUPS VARYING IN INTIMACY OF PRIOR CONVERSATION WITH VICTIM AND DOGMATISM

Dogmatism	Intimacy of conversation in minutes 0	3	6	12
High	303.4	292.0	268.6	162.0
Low	250.8	254.0	212.0	186.8

where a reversal occurs. A t test between Ss who scored in the bottom half on dogmatism *versus* those who scored in the top half, but with analysis only for the first three conditions (0, 3, and 6 minutes), shows statistical significance ($t = 2.05$, $\overline{X}_{Low} = 239.0$, $\overline{X}_{High} = 288.0$, variance$_{Low} = .89$, variance$_{High} = .50$, $N = 48$, $p \leq .05$). In other words, dogmatism is a significant predictor except where the pressure of intimacy becomes too intense. It can be speculated that since dogmatic individuals are more insecure (2), they desire approval in more intimate contact. Consequently, they are less capable of shocking at high levels if the victim is sufficiently close.

Table 2 shows the results of a regression analysis. The two independent variables and their interaction account for 20 percent of the variance in predicting shock level. The prediction formula is as follows: 380 + 62 (Intimacy) + 17 (Dogmatism) + 5.5 (Interaction). The results suggest considerable variation from a linear model. It is clear, however, that intimacy, dogmatism, and their interaction must be taken into account in understanding laboratory aggression. The study also suggests the dependence of personality traits on situational variation.

TABLE 2
REGRESSION ANALYSIS FOR INTIMACY, DOGMATISM, AND INTERACTION

Variable entered	*df*	*F* level	R^2
Intimacy	56	9.35	14.3
Dogmatism	55	2.49	18.8
Interaction	54	1.00	20.0

C. STUDY 2: VULNERABILITY TO SITUATIONAL PRESSURES AND LABORATORY AGGRESSION

1. *Method*

a. Subjects. The Ss for the first part were 53 other General Psychology students enrolled at Oregon State University, Fall, 1972. Forty-six undergraduate students recruited during Winter, 1974, participated in the second part of this study.

b. Instrument. All *S*s in the first part completed Rotter's (9) Internal-External Locus of Control Scale. The *S*s in the second part responded to a survey consisting of a measure of self-esteem derived by evaluating the real self and ideal self on the evaluative dimension of the semantic differential (4), and the Larsen (3) forced choice approval seeking personality test.

c. Apparatus. The apparatus was identical to that used in Study 1.

d. Procedure. The procedure involved explaining the study as a teacher-learner experiment identical to the control condition in the Larsen *et al.* (5) study. Knowledgeable *S*s were debriefed and excluded.

2. *Results and Discussion*

The *S*s in the first part were rank ordered on the locus of control variable and divided into thirds to increase the power of the t test between bottom and top thirds, analyzing for differences in shock levels administered. The t test was nonsignificant ($t = .66$). This disconfirms our hypothesis concerning the relationship of locus of control and learning aggression. Perhaps the locus of control variable is too abstract to relate to the specific behavior of administering shock. In this laboratory situation, there is no real predefined "fate" or "luck" for the victims and, therefore, no clear indication of what "fated" behavior would be for the *S*s. The failure to establish a relationship between locus of control and laboratory aggression led to a search of personality variables which might more directly relate to a willingness to comply with the demands of the experimental selection. We hypothesized that *S*s high in approval seeking and low in self-esteem were more vulnerable to the pressures of the selection and consequently would shock at higher levels.

The Pearson product-moment correlation between level of shock and self-esteem in the second part was .33 ($N = 45$, $r = .29$, $p \leq .05$). This supports our hypothesis that *low* self-esteem is related to willingness to comply in an experiment of laboratory aggression. The correlation between approval seeking goals and level of shock administered was .41 ($N = 45$, $r = .29$, $p \leq .05$). It is logical that those with high approval seeking motivation would be more likely to comply with the pressures of any situation, including the demands made in the teacher-learner laboratory aggression studies.

D. General Discussion

These two studies represent a continued investigation into variables predictive of laboratory aggression. Previous studies by Larsen *et al.* have demonstrated the importance of situational conformity in the administra-

tion of shock to an innocent victim. Personality variables measuring various aspects of aggression did not predict shock levels reliably. In the search for personality variables as efficacious predictors of laboratory aggression, it was suggested that they all should reflect susceptibility to situational pressures. Four variables (dogmatism, self-esteem, external locus of control, and approval seeking values) were considered to reflect relative submission or resistance to situational pressures. The results show that three of them—dogmatism, self-esteem, and approval seeking—are related to the level of shock administered to a victim in the teacher-learning paradigm. This supports the idea that laboratory aggression might best be termed compliant aggression. The extent to which this paradigm applies to real life must be determined by whether the real life aggression situation contains the possibility of anonymity and is, therefore, safe. Many real life situations of mass atrocities contain such possibilities of anonymity. *S*s who are likely to conform under such conditions are likely to be high in dogmatism, low in self-esteem, and high in approval seeking motivation. *S*s who have these personality qualities may easily be manipulated in situations demanding compliant aggression.

Situational pressures, however, may predominate regardless of personality as shown in Study 1. The primary component of situational pressures is the psychological distance between *S* and victim which affects the *S*'s ability to empathize. Intimacy (manipulated by means of varying lengths and contents of conversations prior to the experiment) was an efficacious predictor. The results also show that dogmatism was an effective predictor for low levels of intimacy. This can best be understood as a function of two cross-pressures: (*a*) the demands of the experiment, and (*b*) personal pressure from the victim. Because of the personal insecurity of *S*s high in dogmatism, the pressure from the victim is felt more intensely under conditions of intimacy than the pressure derived from the demands of the experiment. The first study reported in this article, however, clearly indicates that situational pressures are more important than the personality trait studied (dogmatism) and, in fact, cancelled its effect under the condition of high intimacy.

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SUBJECTIVE REACTIONS TO SEX-LINKED LANGUAGE*[1]

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SUMMARY

Sex-linked lexical forms were presented in writing to 41 female and 21 male white, middle class, adult *S*s who were attending a PTA meeting. *S*s were asked to associate the forms with 10 attributes represented by adjective scales, each scale having a male and a female pole. It was found that female and male language evoked associations of stereotypic female and male traits respectively. Both men and women harbored similar associations for a given language form. If language is actually produced by the two sexes in accord with peoples' beliefs about the sex appropriateness of certain linguistic forms, then the two sexes as speakers, through their respective gender-based linguistic varieties (their gender-dialects), may be elicitng perceptions of dominance or subordination from their listeners, thus perpetuating their societally defined roles.

A. INTRODUCTION

It is a sociolinguistic fact of life in Western society, and perhaps universally, that if a certain group of speakers uses a particular linguistic variant, then the social value attributed to that group will be transferred to the linguistic variant (5, p. 136; 7, p. 205; 8; 10). This has been demonstrated by research which shows that people's reactions to linguistic variants reflect their attitudes to the speakers of those variants and correlate with the social position of the speakers. Taped speech of high status speakers was perceived by judges to be credible and more suited to high status jobs than that of low status speakers (3). Attitudes along personality and physical characteristic dimensions toward linguistic varieties and variants, and infer-

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[1] This material is based on a section of a dissertation by Carole Edelsky, entitled "Evidence for the existence and acquisition of an aspect of communicative competence; recognition of sex of speaker from linguistic cues—or knowing how to talk like a lady." It was submitted in partial fulfillment of the requirements for the Doctoral degree at the University of New Mexico, 1974, and owes much of its shape and substance to Dr. Bernard Spolsky.

entially towards categories of speakers, were elicited by taped samples of speech and were in substantial agreement with the prestige of the category to which the speakers belonged (9, 13). Furthermore, when these attitudes were elicited, they were often shared by those who were users of the variants in question and by those who were not (4, p. 280).

Most of the work on evaluative or subjective reactions to linguistic variants presents *S*s with rating scales (pairs of descriptors with a positive and a negative pole) on which they indicate their evaluation of the taped speech they hear. The speech samples are most often distinguished by differential use of two or more variants of one or more linguistic variables (variants of a phonological variable, such as a phoneme, variants of a syntactic variable, such as a rule for negation, etc.). In such research, the listeners respond to the social meanings signalled by various realizations of a particular linguistic variable. Occasionally, there have been studies of reactions to printed language labels, rather than to actual speech (12).

The research to be reported concerns reactions to different linguistic variables whose use is supposedly sex-linked, not to variants of a single linguistic variable. A larger study had determined that native English speaking adults living in a medium-sized American city showed tremendous agreement when they were asked to decide on the likely sex of the speaker of sentences containing such linguistic forms as "adorable," "my goodness," "oh dear," "divine," "I'll be damned," "damn" + adjective ("damn right," "damn mad"), "shit," tag question, etc. (2). Even when viewed as pairs (for example, "divine/great," "oh dear/damn it"), such linguistic forms are not variants. That is, they are not different ways of saying the same thing. Rather, they are different ways of saying different things. They incorporate other differences in meaning (different speaker/topic relationships, different speaker /addressee relationships) in addition to the sex-of-speaker/language form meaning. The fact that such linguistic forms can be assigned to speakers on the basis of sex reflects the fact that certain meanings, signalled by particular linguistic forms, are seen as more appropriate to one or the other sex.

The distinction between variants and variables or forms, then, refers to the fact that the former consist of linguistic phenomena which are referentially equivalent while the latter do not. The two pronunciations /den/ ("then") and/ðen/ ("then") refer to the same temporal or sequential notion and incorporate variant realizations of a single English phonemic variable. It is logical that reactions to linguistic variants, whose use is socially conditioned but which signal no difference in meaning, would reflect social

evaluation of the users of different variants. In the case of variants, since there is no difference in referential meaning, it is only the social meaning that is being assessed. Supposedly female and male language, however, is often distinguished by a differential assignment, on the basis of sex, of linguistic forms which vary in meaning on several dimensions. That is, "Oh dear, the TV set broke" and "What a divine idea" are not simply different ways of saying "Shit, the TV set broke" and "What a great idea." In the case of "Shit," the speaker expresses a relationship to the topic which conveys anger, conviction, strength of expression, greater power in the world and, therefore, more right to profane the world. By using "great," the speaker indicates an appraisal that the topic belongs to an important domain. With "Oh dear," however, the speaker's relationship to the topic conveys anxiety, distress, absence of conviction, and absence of the right to profane. In using "divine," the speaker is expressing an evaluation that the topic is part of a trivial domain (2).

The present research deals with the question of whether the values and attributes socially assigned to the two sexes in middle class, English speaking America transfer to the linguistic forms whose use is presumably conditioned by the sex of the speaker. Since the forms are already differentiated in meaning, it would be expected that some differential reaction would occur to female *vs.* male forms. That is, powerless language may not have derived its connotation of powerlessness from its association with the powerless sex. Rather, it is probably the case that the lexical items, in which some aspects of powerlessness is inherent, and the female sex, to which a subordinate position is socially assigned, "deserve each other." On the other hand, it is also possible that although the language items already connote weakness and subordination *vs.* strength and power, they take on a host of other associations of sex-typed attributes because of their link with a particular sex.

B. Method

1. *Development of the Language Association Test*

A series of 10 bipolar scales were chosen from a list of 41 bipolar adjectives that were found to be "stereotypic" in the amount of agreement they elicited among *S*s who were asked to use them to rate the categories "men" and "women" (1). The 41 adjectives and their opposites included such attributes as aggressiveness, adventurousness, neatness, and tactfulness. Most of the poles that were associated with men were deemed the

most desirable poles by other *S*s in that study. The 10 adjective pairs that were chosen for the present language association test, then, were drawn from a list of 41 pairs which had each been shown to have a male and a female pole, the male pole being generally more positively valued. The 10 pairs were as follows: gentle-not gentle, aggressive-not aggressive, confident-not confident, independent-dependent, active-passive, dominant-submissive, decisive-indecisive, easily influenced-not easily influenced, sloppy-neat, logical-illogical.

The language forms were selected from those that more than 70 percent of 122 adult *S*s agreed were more likely to be used by speakers of one as opposed to the other sex (2). There were three female and three male language forms to which *S*s were asked to make an association with each of the 10 adjective scales. These were the following: "That's adorable!" "Oh dear!" "My goodness!" "Shit!" "Damn right!" "I'll be damned!" Since the problem was defined as one of determining reactions to linguistic forms alone rather than to voice qualities in combination with the forms, the language was presented in written rather than spoken form.

The test booklet had six pages with a language form heading each page. The 10 seven-point adjective scales were arranged in varying order on each page. Likewise, the poles of the scales were manipulated so that the left-hand side of the scales sometimes contained the male pole and sometimes the female. The directions indicated that *S*s were to associate the language form at the top of each page with each of the attribute scales below it. An x near or at the center indicated a weak or a neutral association between the form and that attribute.

2. *Subjects*

The *S*s were 41 women and 21 men who were attending a PTA meeting at an Albuquerque elementary school located in a neighborhood of middle class, almost entirely white, native English speakers. The entire attendance at the meeting constituted the testing population.

3. *Experimental Procedure*

Except for the introduction of the tester, no preliminary explanations were given. The testing took approximately 25 minutes. After all booklets had been collected, the purpose of the research, its place in a larger study concerning the recognition of sex-appropriate language, and the selection of the adjective scales and language forms were explained.

4. *Method of Data Analysis*

A number from 1 through 7 was assigned to each association that was made between a language form and a position on the seven-point scale between each adjective pair. A rating of 7 was the scale position closest to the female pole, while a rating of 1 was the position closest to the male pole. All *S*s had made a total of 60 associations, 30 to the three female language forms, and 30 to the three male forms. In order to discover whether female and male language was associated with a female and a male cluster of attributes, respectively, three separate *t* tests were performed on the mean of the 30 ratings made by all *S*s, by male *S*s, and by female *S*s to female language as contrasted with the mean of the 30 ratings of male language. In order to find out whether male and female *S*s rated the language form differently, a *t* test was performed on the mean ratings of the 30 associations made to female language by male *S*s compared with the mean of the 30 associations made to female language by female *S*s. Another *t* test was performed on the mean ratings of male language made by female as compared with male *S*s. Separate *t* tests were used rather than one analysis of variance because of a lack of variance homogeneity (11, p. 180).

In order to know whether female *vs.* male language evoked female *vs.* male adjective pole associations on each of the 10 dimensions tested, 10 separate analyses of variance were performed on the mean ratings of each *S*'s associations between each attribute and the three female language forms as contrasted with the mean ratings of the associations between each attribute and the three male language forms. For instance, the analysis of variance on the ratings of the language variables with the attribute of gentleness dealt with the following questions: Do men as contrasted with women make different associations between the language and the attribute of gentleness? Do all *S*s rate male language as contrasted with female language differently on the attribute of gentleness? Is there an interaction between the sex of the rater and the sex assignment of the language forms when associations are made between the forms and the attribute of gentleness?

C. Results

1. *Sex of Subject Differences*

A comparison of men's and women's associations on all of the 10 attributes to the male language resulted in a nonsignificant *t* of .356, $p = .05$.

The comparison between men's and women's associations to the female language also produced a nonsignificant t of 1.054. When 10 separate analyses of variance were performed on associations between the sex-linked language items and each attribute, there was a similar lack of difference between male and female *S*s' ratings. The 10 F ratios ranged between .003 and 3.591, with most of them hovering around 1.5.

2. *Sex of Language Differences*

When the strength of associations with all 10 attributes made by all *S*s to the female language were compared to the strength of associations made to the male language, a significant t of 16.71 resulted, $p = .001$. The same comparison of associations made to female as opposed to male language items made by men only revealed a significant t of 7.927, $p = .001$; the comparison of women *S*s' associations produced a t of 13.865.

Ten separate analyses of variance performed on ratings of female as opposed to male language and each of the 10 qualities (gentleness, aggressiveness, neatness, etc.) revealed significant F ratios, $p = .001$, on all of the attributes except logicality. The F ratios for all of the qualities except logicality varied between 23.209 and 281.144. No significant interaction occurred between sex of *S* and sex of language item.

The analyses of variance and the t tests revealed that, on the whole, these *S*s did indeed associate female linguistic items with the female poles of each sociopsychological attribute and male linguistic items with the male poles.

D. Discussion

The present study confirms the sociolinguistic principle that there is a relationship between the social value of a group of speakers, in this case, speakers divided according to sex, and the social value of linguistic items associated with that group. Referring again to the distinction between linguistic variants, which are referentially equivalent but signal different social meanings, and linguistic variables or forms which have different social meanings *and* different linguistic meanings, it is probably the case that supposedly female language incorporating words like "dear" and "good" are inherently more gentle and less aggressive than supposedly male language. One would expect, then, that on several dimensions, middle class American English male language *vs.* female language would evoke different associations. The more interesting results concern the associations

of sex-linked language with such attributes as neatness, dependence, decisiveness, ease of influence, and logicality. Not only was "oh dear" and the other female language perceived as more gentle and less agressive than "shit" and the other male language, it was also perceived as neater, more dependent, more easily influenced, less decisive, more submissive, less confident, and more passive. Only on the scale "logical--illogical" was there no difference in the associations elicited by female as opposed to male language. In this case, "logical" may have been interpreted to mean objective rather than subjective, proper, or grammatical (linked to the schoolish definition of complete thought= complete sentence = grammatically correct or grammatically logical). Since all the language items were subjective and emotional, since the male language was "improper" while the female was "proper," and since the male language consisted of all expletives and no "complete" sentences (i.e., no exclamation in combination with a topic) while the female language contained one "complete" sentence ("That's adorable"), the fact that male language evoked a slightly, but not significantly, greater image of illogicality may be accounted for by the meanings people attached to the label for that dimension.

On the whole, then the female language *was* associated with attributes that are part of the female stereotype, not only those like gentleness which are closely connected to expressions containing "dear," but also those like neatness which are farther afield. If the two sexes in middle class white, English speaking America actually produce language in accord with people's beliefs (which were the basis for calling the forms female or male) about the language of women and men, they could be providing one small way in which stereotypes and respective positions in the social order are perpetuated. Language use both reflects and reinforces social structure. The fact that in English, linguistic forms are seen as appropriate to speakers of a given sex is a reflection of sex role and social status arrangements. The assignment and then the use of linguistic forms on the basis of sex or any other social division helps define and condition the outcome of particular social interactions (6, p. 60). Language use can thus reinforce the status differential existing between the sexes by allowing people to justify women's lesser power partly on the basis of the linguistic evidence supplied by female speakers. That is, with each utterance of "oh dear" for instance, a speaker, probably a woman, is broadcasting not only a lack of involvement with a topic, but submission, dependence, passivity, neatness, and many other facets of the female stereotype.

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RETALIATION AND THE ATTRIBUTION OF RESPONSIBILITY FOR UNFAVORABLE EVALUATIONS OF PERFORMANCE*

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SUMMARY

The hypothesis was tested that unfavorable performance evaluations made by a co-worker will be reciprocated by an *S* when the co-worker is perceived as having based his evaluations upon subjective judgment rather than upon objective measurement. Sixty-four female *S*s from South Wales, aged between 17 and 39, were randomly allocated into pairs and followed a reversed-roles procedure in the performance of a judgmental task. The "operator" was led to believe that her performance had been adversely evaluated by the "inspector" either on the basis of the inspector's own opinion or on the basis of objective measurement. The results confirmed the hypothesis. When operators had a subsequent opportunity of evaluating the performance of their own inspectors, they tended to retaliate more if their own responses had been rejected by means of the judgment criterion than if rejected by means of the measurement criterion ($p < .05$). This finding supports a reciprocity interpretation and is discussed in terms of the perceived control which the inspector has over accepting or rejecting personal responsibility for her partner's outcomes.

A. INTRODUCTION

Reciprocation of negative social acts has generally proved more difficult to elicit experimentally than the reciprocation of positive social acts. Hindrance or refusal to help appears to produce at worst little or no reciprocation of help rather than outright retaliation (4, 6). Even studies which have explicitly attributed responsibility to the perpetrator have indicated that a selfish or obstructive act may not *per se* be a sufficient condition for

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eliciting a retaliatory response, despite the widely held theoretical view, based upon the attribution model of Jones and Davis (3), that motivation for reciprocity is increased when the perpetrator's action is perceived as voluntary and intended. Leventhal *et al.* (5), for example, found that intentionally underrewarded *S*s did not increase their share of the reward when they had a subsequent opportunity for doing so any more than did those underrewarded by chance. This is in contrast to their results with intentionally overrewarded *S*s who decreased their own share of reward to a greater extent than did those overrewarded by chance. These authors explain their results in terms of social constraints and anxieties inhibiting overt retaliation, but it is also plausible to argue, as Berkowitz (1) has done in relation to other experiments, that the situational stimuli were insufficient for "pulling" retaliation from the thwarted *S*. Presumably the point at which a behavioral reaction is exhibited is when the situational variables become stronger than the social constraints.

The present experiment is designed to explore a further situational variable which may be conducive to retaliatory behavior.

The assumption is made that *more* blame is attributed to the perpetrator of an intended negative act in a situation in which he is perceived as being free to accept or reject responsibility for exercising personal control over his victim's outcomes. This assumption is derived from the increased information to the victim of knowing how much more control the perpetrator has over the choices of action confronting him, as emphasized by Jones and Davis (3), and by Fishbein and Ajzen (2) in their discussion of contextual levels in attributions of responsibility. Specifically it is hypothesized that an *S* whose performance is evaluated unfavorably by his co-worker will retaliate when he perceives that the evaluations are made subjectively, and are therefore intended, in a situation in which his co-worker is at liberty to choose an objective, and therefore unintended, method of evaluating his performance.

B. Method

1. *Subjects*

Sixty-four female *S*s were used between the ages of 17 and 39. They consisted of housewives, part-time clerical employees, teachers, and students from similar social backgrounds in South Wales. *S*s were tested in pairs, the only stipulation being that each pair should comprise similar aged *S*s who were strangers to each other.

2. *Apparatus and Task*

Three interconnecting booths were each equipped with a table, chair, and a display-control panel. Figure 1 sets out diagrammatically the display-control panel in each of the two booths occupied by the pair of *S*s.

In the "operator's" booth the display consisted of a series of pointer settings on the face of a 100° angle meter-scale on which only the end limits (0 and 100) were marked. The operator's task was to judge the accuracy of each pointer setting against a target setting presented verbally by the *E*. For example, if the required target was given as 67, then the operator had to judge whether the pointer setting was on this target. She was informed that two degrees of error either side of the target were permissible: i.e., any actual setting between 65 and 69 would be acceptable. She was required either to accept or to reject each setting by depressing one or other of two appropriately labelled buttons beside her display. After responding, she awaited feedback from her "inspector," communicated to her by means of one of four lights. These lights informed her whether the inspector had "judged" or "measured" her response as "right" or "wrong" (see below).

In the inspector's booth the inspector monitored the same display of pointer settings on an identical unscaled meter in series with the operator's. The illumination of one of two response lights informed the inspector whether the operator accepted or rejected each setting. Having seen the operator's choice of response, the inspector was required to evaluate that response in either of two ways. For this purpose two "evaluation switches" were provided. Use of the "judge" switch merely indicated to the *E* that the inspector had chosen to evaluate the operator's response on the basis of her own judgment. Use of the "measure" switch deflected a pointer across the scale of a second meter to the same scale position as that occupied by the pointers on the inspector's other meter and on the operator's meter. The scale on this second meter was, however, clearly marked in units of 2°, enabling the inspector to measure the setting objectively as a basis for determining the operator's response accuracy. Having therefore evaluated the operator's response in one of these ways, the inspector communicated her decision to the operator by depressing one of four feedback switches which indicated whether she evaluated the operator's response as "right" or "wrong" and on the basis of which evaluation criterion: judgment or measurement.

The third booth was occupied by the *E* whose display enabled him to monitor the whole sequence of responses by the operator and inspector. In

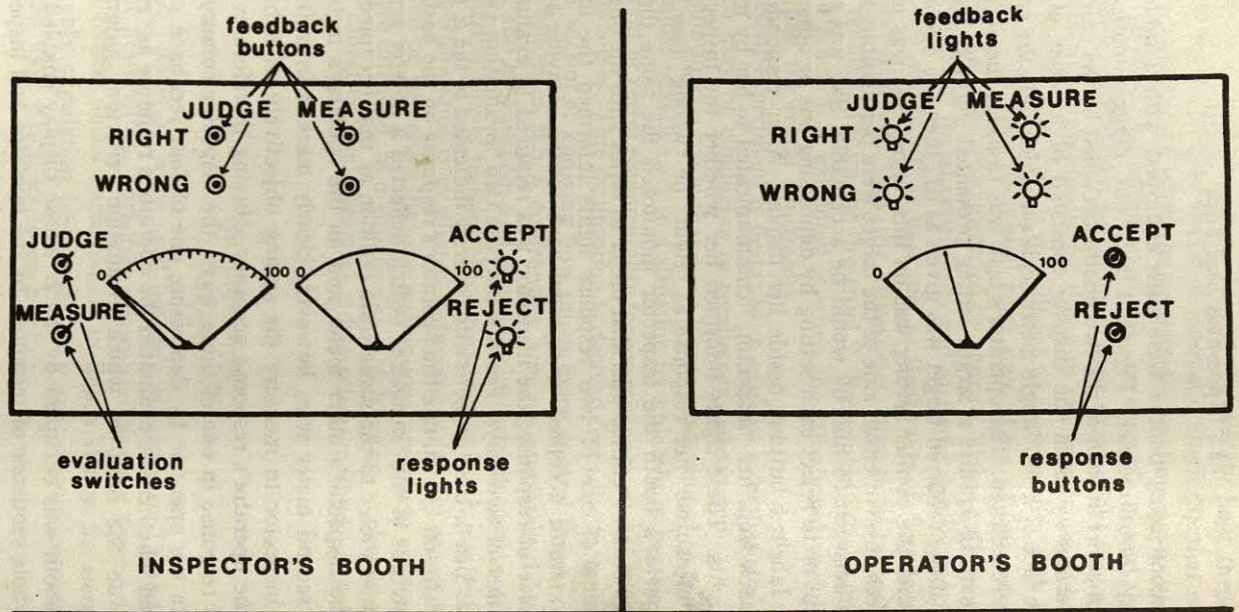

FIGURE 1
THE DISPLAY-CONTROL PANELS LOCATED IN THE OPERATOR'S AND INSPECTOR'S BOOTHS

addition the *E* controlled a switch which broke the circuit between the inspector's feedback buttons and the operator's feedback lights and connected the latter to a panel of feedback buttons on the *E*'s control panel. This provision enabled the *E* to substitute his own feedback to the operator for that of the inspector.

3. *Procedure*

A reversed-roles procedure was adopted. Halfway through the experimental session *S*s exchanged roles and booths in order to give the operator whose performance was evaluated in the first half an opportunity to evaluate her inspector's performance in the second half. The operator and inspector in stage 1 will be denoted by $O_{(1)}$ and $I_{(1)}$, respectively, and in stage 2 by $O_{(2)}$ and $I_{(2)}$, respectively.

a. Stage 1. *S*s attended the laboratory in pairs. On arrival one of each pair was randomly cast into the role of $O_{(1)}$ and the other into the role of $I_{(1)}$. The experiment was presented as an inspection task designed to assess how accurate they each could be in judging a series of pointer settings. They were then instructed in both the operator's and inspector's tasks, and informed that since they would exchange roles half-way through experiment, they needed to understand both task procedures. Care was taken to ensure that they understood completely the difference between the two evaluation criteria, and it was emphasized that, as inspectors, they were free to choose whichever criterion they wished from one setting to the next.

The task was unpaced for $O_{(1)}$ and $I_{(1)}$ although each of the 30 predetermined pointer settings lasted for 10 seconds before automatically zeroing. $O_{(1)}$ was instructed to respond when she was ready to do so before or after the end of each setting, and $I_{(1)}$ was instructed to evaluate $O_{(1)}$'s response as soon as she liked. The feedback response by $I_{(1)}$ was followed by a five-second gap before the next setting appeared, during which the *E* announced the next target.

During this stage $O_{(1)}$ received her feedback entirely from the *E*, believing it to come from $I_{(1)}$. An independent groups design was adopted. *S* pairs were divided into four groups of eight pairs, balanced only for age. Pairs in each group were given one of four predetermined feedback conditions designed to influence $O_{(1)}$'s perception of how her performance was evaluated by $I_{(1)}$. These conditions represent variations in the proportions of correct to incorrect and judged to measured feedback given over the first stage of the experiment. They are designated by the labels RJ (Right/Judge), RM (Right/Measure), WJ (Wrong/Judge), and WM (Wrong/

Measure) according to the type of feedback predominantly given and according to the method by which $O_{(1)}$'s responses were predominantly assessed (see Table 1). In the RJ condition, for example, $O_{(1)}$ was given "right" feedback on 24 (and "wrong" on six) of her 30 settings, and was informed that her $I_{(1)}$ had judged 24 (and measured six) of her responses. Given these proportions, the determination of which particular settings should receive which form of feedback was made at random. In reality one half of the settings were correct. Those that were incorrect were either 1 or 2 degrees outside the latitude of error permitted. Clearly from $O_{(1)}$'s point of view the false feedback had to appear plausible. For the same reason proportions of the different kinds of feedback were used to offset any suspicions which $O_{(1)}$ might have entertained about the validity of the feedback had she received 100% correct or incorrect feedback.

b. Stage 2. After exchanging roles and booths, *S*s were given a further series of 30 settings. Twenty-four of these 30 settings were deliberately placed on the borderline of acceptance (i.e., two degrees from the required target position) in order to increase $I_{(2)}$'s uncertainty about the correctness of the accepted or rejected responses made by $O_{(2)}$. $I_{(2)}$, therefore, had to make rather an arbitrary decision, no matter whether she chose to measure or judge the accuracy of each setting. This situation encouraged the behavioral expression of any influences derived from $I_{(2)}$'s own prior feedback experience.

Since it was $I_{(2)}$'s evaluation performance which was the crucial dependent variable, the transmission of genuine feedback from $I_{(2)}$ to $O_{(2)}$ was permitted during this stage.

*S*s were given two practice trials at the start of the whole experimental session during which feedback was withheld. At the end of the session all

TABLE 1
CONDITIONS OF PREDETERMINED FEEDBACK ADMINISTERED BY THE *E* DURING THE FIRST HALF OF THE EXPERIMENTAL SESSION

Conditions		Evaluation criterion		Feedback	
Label	Description	Judge	Measure	Right	Wrong
RJ	Right/Judge	24	6	24	6
RM	Right/Measure	6	24	24	6
WJ	Wrong/Judge	24	6	6	24
WM	Wrong/Measure	6	24	6	24

Note: Figures in this table represent the number of settings in each condition on which $O_{(1)}$'s responses were judged and measured and given as correct and incorrect.

Ss were required to rate, using seven-point scales, their reactions to the tasks and towards each other. They were then debriefed.

C. Results

The main data for analysis are derived from the evaluation decisions of the $I_{(2)}$s during the second half of the experiment. An analysis of variance for independent groups was conducted upon the number of "wrong" feedback measures given in the four conditions on the 24 borderline settings. A significant difference was found between the conditions ($F = 3.93$, $df = 3/28$, $p < .05$). Duncan's multiple range test indicated that this difference was attributable to the significantly greater mean number of wrong feedback measures given by $I_{(2)}$s in the WJ condition ($\bar{X} = 11.9$) than mean numbers given by $I_{(2)}$s in the RJ ($\bar{X} = 7.7$), RM ($\bar{X} = 8.2$), and WM ($\bar{X} = 9.5$) conditions. The latter three conditions did not differ significantly from each other. These results support the hypothesis that reciprocation of negative evaluations of performance occurred only when the operator perceived that her performance had been judged by the inspector and not measured. Evidence that the reciprocation was intended can be obtained by comparing the extent to which the wrong feedback measures given by $I_{(2)}$s in each condition were the result of using the judging or measuring criterion (see Table 2). In the RJ, RM, and WM conditions virtually twice as many of these wrong feedback measures were the outcome of measurement rather than of judgment. In the WJ condition, however, considerably more of $O_{(2)}$'s responses were rejected, having been judged rather than measured.

A *t* test was conducted to compare differences in the $I_{(2)}$'s usage of the judging and measuring modes as a function of their prior experiences as operators. It was found that significantly greater usage of the judging criterion was made by $I_{(2)}$s in the RJ and WJ conditions than in the RM

TABLE 2
Mean Numbers of Incorrect Feedback Measures Given by $I_{(2)}$s on the Basis of the Judging and Measuring Criteria

Conditions		Mean number of responses judged incorrect	Mean number of responses measured incorrect
Label	Description		
RJ	Right/Judge	2.62	5.12
RM	Right/Measure	2.62	5.62
WJ	Wrong/Judge	7.25	4.62
WM	Wrong/Measure	3.37	6.12

and WM conditions ($t = 2.96$, $df = 30$, $p < .01$). The mean number of judged responses was 19.4 (out of a total of 30 responses) for the RJ and WJ conditions together, and 13.4 for the RM and WM conditions.

From the rating scales administered at the end of the task, two intergroup differences emerged: $O_{(1)}$s in the WJ and WM conditions rated their $I_{(1)}$s significantly lower in "fairness" than did $O_{(1)}$s in the RJ and RM conditions (median test $\chi^2 = 4.67$, $df = 1$, $p < .05$). In conjunction with this the former $O_{(1)}$s judged that they had performed better than their feedback indicated and significantly more so than the latter $O_{(2)}$s ($\chi^2 = 12.54$, $df = 1$, $p < .01$).

$I_{(2)}$'s decision times were analyzed in terms of the interval between $O_{(2)}$'s response and $I_{(2)}$'s choice of evaluation criterion. Despite large between-*S* differences, the data pointed to a greater delay in choosing to measure than in choosing to judge, across all conditions ($F = 5.20$, $df = 1/28$, $p < .05$). This is in accord with *S*s' verbal reports that they tended to measure those settings of which they themselves were least certain.

D. Discussion

In support of the main hypothesis the results show that reciprocation occurred more in response to unfavorable evaluations of performance that had been made on the basis of personal judgment than in response to those made on the basis of objective measurement. This was demonstrated in a situation in which the evaluator was perceived as having control over accepting responsibility for the outcome. An informational gain interpretation may help to account for the difference between this result and that obtained by Leventhal *et al.* (5) in relation to control over division of rewards. A person may find an inequitable split of rewards in his partner's favor more pardonable when he appreciates that his partner has been given specific control over the division of rewards. He can readily argue that in his partner's position he would have done the same. However, had the partner taken the option of exercising such arbitrary control in a choice situation in which he was free to avoid responsibility for dividing rewards, then from the person's point of view underreward may be less pardonable.

The present finding supports an interpretation in terms of reciprocity because it is based upon the *S*'s perception of the manner in which her performance had been evaluated, rather than upon the favorability of the actual outcome. The implication is that the operator could more readily accept unfavorable evaluations of her performance when she perceived that her responses had been measured and found incorrect than when she

perceived that they had been deemed incorrect on the basis of her partner's judgment alone. If a modeling effect had been operative and *S*s had simply matched the type of feedback they gave to the type they had received, then the evaluation criteria should not have made any difference to the number of wrong feedback measures reciprocated.

Evidence to support an attribution process comes from two sources: the data in Table 2 and the fairness ratings. Table 2 indicates that inspectors generally favored an objective basis for rejecting the operators' responses, but that those in the retaliation condition (WJ) favored subjective judgment. This is consistent with the view that persons predisposed to retaliate may relinquish their normal reticence in perpetrating unfavorable social acts without sufficient objective justification. It also reflects the intentions inferred from their partners' behavior. The differences in ratings of fairness provide evidence that operators were making some inferences about the treatment they had received from their inspectors, although it is strange that operators in the WM condition should have rated their inspectors as low in fairness as did operators in the WJ condition.

Analysis of the criteria of evaluation used by $I_{(1)}$s on all settings (whether right or wrong feedback was given) indicates a strong preference for usage of that criterion which had been predominantly applied to them when they were operators. This finding can readily be explained in terms of a modeling effect: it represents one way in which *S*s tried to bring their own performance into line with that of their partners.

"Retaliation" in the present study is treated purely as a relative concept for making intergroup comparisons. If the means of the *correct* feedback measures given by $I_{(2)}$s in all four conditions are considered (these can easily be obtained by subtracting the mean number of both judged and measured incorrect feedback responses in Table 2 from 24 settings on which feedback was given), then it is clear that a higher proportion of right to wrong feedback was actually delivered, irrespective of prior feedback experience. This overall preference for evaluating others' performances favorably is possibly a cultural phenomenon, reflecting the social constraints against any form of unfavorable or aggressive social behavior however justified it is perceived to be. Such constraints may be even stronger among female than among male *S*s in view of society's differential tolerance towards socially unacceptable behavior in men and women. Whatever its cause this preference may explain why no particular evidence of positive reciprocation was found in response to the RJ condition. If a person is held more responsible for intended acts, then receiving favorable

evaluations of performance on the basis of the judging criterion should be perceived as evidence of a more altruistic intent than favorable evaluations on the basis of the measuring criterion. That this was not borne out by the data may merely reflect the high level of response acceptance by inspectors in the RJ and RM groups.

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GRAFFITI IN THE 1970's*

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SUMMARY

If graffiti reflect social conventions in the expression of sexuality rather than inherent basic differences in male and female sexuality as Kinsey and others have hypothesized, then the increased emphasis on female sexuality and freedom of expression might be reflected in graffii produced by the younger generation. Four high schools were selected to represent different socioeconomic and racial populations. Graffiti from male and female restrooms in each school were copied on 3 × 5 cards for sorting by three independent judges into 16 content categories. The most striking finding was that females wrote more than males, producing 88% of the total graffiti. Content analysis showed that while females predominantly wrote romantic inscriptions, this finding was dependent on socioeconomic level, with upper levels writing less romantic and more erotic material. Race was found to have little or no influence on the likelihood of the amount or content inscribed. The school which had the greatest heterogeneity of race and socioeconomic level produced over twice as much graffiti as the more homogeneous school populations.

A. INTRODUCTION

As an area of study, graffiti are of interest because of two assumptions: one, that graffiti represent a form of spontaneous self-expression without the inhibitor of accountability, and two, that the content of these writings reflects areas of conflict or "popular preoccupations" of the general public. Since by far the largest proportion of graffiti found in public restrooms is sexual in content, investigators in the area of human sexuality have used graffiti as indicators upon which to base hypotheses concerning the nature of human sexuality, as well as differences in the nature of male and female sexuality.

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One very consistent finding has been the greater *amount* of graffiti men produce compared to females. Kinsey *et al.* reported this finding in his book *Sexual Behavior in the Human Female* (2) and cited even earlier studies reporting the same. Kinsey attributed the difference in amount of graffiti to women having greater regard for moral codes and social conventions which would inhibit writing on walls *per se,* as well as expressing sexual content. More recently Landy and Steele (3) and Rudin and Harless (6) have also found greater incidence of graffiti in male restrooms. Because evidence of smoking was found in the female restrooms used in these studies, these authors attributed the relative lack of graffiti to female restrooms being used as a lounge, as well as a toilet, which they believe would inhibit the production of graffiti. Landy and Steele went further and hypothesized that the lack of graffiti plus the evidence of smoking suggested the need for phallic expression in women.

Another reported male/female difference in graffiti concerns the *content* of these inscriptions. Kinsey *et al.* (2) sorted graffiti into two content categories, "romantic" and "erotic." He found 86% of male graffiti was erotic in content, while only 25% of the female graffiti was erotic. Most of the female graffiti was romantic—i.e., "John Loves Mary"—or nonspecific. Kinsey felt these content differences reflected the general male/female response to sexual stimulation wherein erotic stimulation was far less important to female sexuality than romanticism. He concluded that his comparisons of male/female graffiti epitomized some of the most basic sexual differences between males and females.

These two findings are the only comments to be found in the literature concerning female graffiti and its implications for female sexuality. Certainly findings such as these and the implications drawn from them have contributed to the belief that males and females differ considerably in their basic orientation to sexuality.

Recent evidence from Masters and Johnson (5) and Fisher (1) has suggested that males and females may be far more similar in their sexual responses, both physiologically and in response to visual erotic stimuli, than has previously been thought. The findings of both Masters and Johnson and Fisher suggest that differences heretofore noted in male and female sexual expressions reflect cultural conditioning of the methods of expression rather than any basic differences in sexual orientation. These findings, which have received widespread publicity and therefore dissemination throughout the general public, plus the emphasis from the women's movement on the validity of freedom of self-expression, suggest that ex-

pression of female sexuality may be changing if it does indeed reflect cultural sanctions rather than inherent basic differences in sexual orientation. If such were the case the clearest indication of such changes might be expected to be found most prominently in the younger generation which would have less exposure to the older cultural norms and would perhaps identify more with current, popular norms. The present study was conducted to explore that possibility by comparing male and female graffiti obtained from restrooms in public high schools. We were further interested in comparisons obtained from different socioeconomic levels which often reflect different acceptance of cultural norms.

B. Method

1. *Locations*

The school districts in this conservative, Midwestern city closely reflected the neighborhoods they served, as busing and other attempts to correct racial or social imbalance had not yet reached this school system. With the use of a real estate guide of the city for home values, plus personal interviews with the school principals, four schools were selected that represented as clearly as possible different socioeconomic levels. Unfortunately, in our society, socioeconomic levels are confounded with race. We could find no lower class school that was not predominantly black, nor any upper class school that was not predominantly white. Only senior high schools were used which are limited to grades 9 through 12 and represent an age range from approximately 14 to 17 years of age. The likelihood that the graffiti obtained in this study were inscribed by the student body exclusively is high, since the school buildings are quite restricted to outsiders (often with security guards), and the faculty have their own restrooms.

School 1: Lower socioeconomic/black (LSE/B). School 1 served predominantly lower to lower middle class families. The neighborhood was composed of older multiple family dwellings with many of the families living on welfare or in very low income positions. The student body was approximately 2300 and was 95% black.

School 2: Lower middle socioeconomic/white (LMSE/W). School 2 served predominantly lower middle class families consisting of blue collar workers and shopkeepers. The neighborhood was composed mainly of small, single family dwellings. The student body was approximately 3000 and was 95% white.

School 3: Middle socioeconomic/mixed (MSE/BW). School 3 served a variety of middle class neighborhoods, several of them integrated. As a result the student body was 50% black. The families are solidly middle class business and professional men, upwardly mobile. A few students came from very poor

homes, while a few students came from upper class homes. Student enrollment was approximately 1800.

School 4: Upper socioeconomic/white (USE/W). School 4 served the wealthiest area of the city. All the families were upper middle class to upper class, and many were socially prominent. Student enrollment was approximately 1200 and was 98% white.

2. *Procedure*

Two male and two female restrooms were surveyed at each school with the exception of School 1 (LSE/B) where one large restroom for each sex served the entire student body. The two restrooms were chosen by the custodian's report of main usage with the exclusion of any restroom in athletic areas. Since some of the schools tried to inhibit graffiti by repeated wall washings, arrangements were made with each school to insure the walls were not washed for at least three weeks before the day data were collected. The data were collected during a two week period in the fall of 1973.

The data were collected by copying each graffito verbatim on a separate 3 × 5 card. A graffiti unit was determined by the thought content, handwriting, and type of writing tool, so that a four line rhyme counted as a single graffiti unit as did a single word by itself. Occasionally there were chained responses—i.e., graffiti which had been written in response to other graffiti. Each chained response was recorded and treated in the analysis as a single unit.

Content categories reflecting those used in previous studies were established *a priori*, but the unexpected variety of the graffiti observed necessitated a more complex categorization to reflect accurately the range of communication. Sixteen content categories were derived as follows:

1. Racial Insults—insults excluding the use of sexual or scatological words.
2. Sexual Insults—any insult using sexual or scatological words excluding reference to race.
3. Racial/Sexual Insults—combined use of sex and race.
4. General Insults—any insult without use of racial, sexual, or scatological words.
5. Sexual Humor—any attempt at humor using sexual or scatological words.
6. General Humor—humor excluding sexual or racial references. (No racial humor was found.)
7. Sexual Request—names, phone numbers.

8. Sexual or scatological words—any single word, broken phrase.
9. Romantic—any statement of attachment excluding sexual.
10. General Racial—any reference to race excluding sexual words.
11. Political—any political reference excluding race and sexual words.
12. Drugs—any reference to drugs or drug usage.
13. Religion—any religious reference.
14. Morals—any moralistic statement.
15. Names—no content other than use of names and initials.
16. Miscellaneous—no categorizable content.

The categories were exclusive so that each graffito was counted only once. Sorting decisions were based on specific word usage rather than implications of content.

Three judges unfamiliar with the study independently sorted each graffito into the content categories. Because of the clear sorting rules and the clarity of the communication in the graffiti, interjudge reliability was extremely high, .96.

3. *Analysis*

Data were analyzed by chi squares and, where appropriate, percentages. A rigorous interpretation of chi square demands complete independence of events, which in this case would mean assuming each inscription was uninfluenced by a prior one. Such an assumption is unlikely when dealing with graffiti. However, the differences presented are extremely large, and for the most part this weakness in statistical rigor is overshadowed by the very magnitude of the results (4).

C. Results and Discussion

The most striking finding, which is contrary to all previously reported studies, is that the high school females outwrote the males 3½ to 1. Of the total graffiti collected, 88% came from female restrooms. This difference was consistent in all four schools. Table 1 presents the amounts and percentages of graffiti by sex and school. The highly significant chi squares confirmed that amount of graffiti was dependent on sex and school ($x^2 = 100.33$, $df = 3$, $p < .001$). The total number of graffiti and proportion of female to male inscriptions was remarkably consistent for Schools 1, 2, and 4. School 3 far outproduced the other schools in total number of graffiti, but the finding of females outproducing the males in amount of graffiti remained the same.

This finding may reflect the exclusively adolescent population from

which the graffiti were obtained. However, the greater adolescent female productivity lends less credence to Kinsey's and others' belief that the lack of adult female graffiti that is the usual finding in public restrooms (7) and college restrooms (3, 6) is due to females having more regard for moral codes and social conventions.

The second area of interest concerned the content of male/female graffiti, particularly the differences in romantic *versus* erotic inscriptions. For this comparison all categories that contained explicit sexual or scatological word usage, such as sexual insults, sexual humor, etc. were collapsed into one, labeled "erotic" and compared with the romantic category. Here the finding was consistent with previous reports of graffiti. Romantic, rather than erotic writing, predominated in the female restrooms as compared to male restrooms ($\chi^2 = 398.49$, $df = 1$, $p < .001$). Furthermore, when the "erotic" category was further differentiated into sexual (use of words denoting sexual activity) *vs.* scatological (use of words denoting eliminative activity), male restrooms were found to be more likely to yield scatological than sexual inscriptions than were female restrooms ($\chi^2 = 6.11$, $df = 1$, $p < .025$).

When the "erotic" and romantic categories were looked at for girls across schools, this common finding turned out to be highly dependent on the socioeconomic level of the school ($\chi^2 = 276.8$, $df = 3$, $p < .001$). As can be seen in Table 1, females in the lowest socioeconomic level (School 1) produced predominatly romantic writings. With each rise in socioeconomic level females produced less romantic and more erotic expressions until at the highest socioeconomic level (School 4) these content categories were roughly equivalent. Although there was an insufficient amount of graffiti in these categories obtained from the male restrooms for a comparable analysis, Table 1 shows that the trend of increased production of erotic material with socioeconomic level is apparent for males as well. This is further substantiated by an analysis of erotic material for both sexes by school resulting in a significant chi square ($\chi^2 = 38.45$, $df = 3$, $p < .001$).

Further evidence that socioeconomic level rather than race influences the sexual mores exhibited in graffiti was obtained by comparing School 1 (LSE/B) and School 2 (LMSE/W). The 16 content categories were collapsed into four major categories (erotic, romantic, political-religious, miscellaneous). The chi-square analysis showed a small, nonsignificant difference ($\chi^2 = 7.15$, $df = 3$, $p < .10$) between the two schools in these content categories.

While it appears that females from upper socioeconomic homes were

TABLE 1
TOTAL GRAFFITI BY SEX, SCHOOL, AND ROMANTIC VS. EROTIC CONTENT

	School									
	1		2		3		4		Total	
Sex	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
	All graffiti by all students									
Girls	421	13	540	17	1326	42	518	16	2805	88
Boys	30	1	38	1	293	9	34	1	395	12
	Percentage reflecting romantic vs. erotic (sexual) content									
Girls										
Romantic		78		72		58		20		
Erotic		9		4		7		15		
Boys										
Romantic		0		11		9		0		
Erotic		7		13		28		29		

Note: *N* = number of graffiti units.

more likely to produce explicit sexual material, it should be noted they were also more likely to produce political, moral, and religious graffiti as well. Over half (59%) of the total amount of female moral writings, 80% of the religious writings, and 90% of all the political writings were obtained from the female restrooms at School 4. The same is not true for males at School 4. Furthermore, the only antiestablishment graffiti came from the female restrooms in Schools 3 and 4 (i.e., "FZHS, stands for fuck zee high school").

Kinsey's statement that the differences he observed in male/female graffiti reflected basic sexual differences in men and women seems at least questionable by the present data. Given more freedom of self-expression females tend to produce explicit graffiti similiar to males. In the category of sexual insult, for example, analysis revealed use of sexual insult was dependent on sex and school ($\chi^2 = 24.51$, $df = 3$, $p < .001$). The females in Schools 3 and 4 contributed a much larger than expected frequency of sexual insults. Also, the category of humor might have been expected to differentiate between the sexes, as women are not popularly noted for humorous graffiti. But when sexual, scatological, and general humor were compared by sex, no significant difference was found between the sexes in type or amount of humorous graffiti ($\chi^2 = 3.415$, $df = 2$, n.s.).

On the assumption that graffiti reflect "popular preoccupations" certain content categories other than sexual were established *a priori*. For exam-

ple, it was expected that racial concerns would be reflected to a large extent in all the schools, since integration had been a major unresolved issue in the city school system. Contrary to expectations only one school (School 3) produced 99% of the total amount of racial graffiti. The remaining 1% was distributed over the other three schools in the study, all of which are racially segregated, one all black and two all white. School 3 is the only integrated school. It would seem that even if race is a current social issue its appearance in the form of graffiti is unlikely to occur unless there is some recognized chance it will be observed by a member of the opposite race. Otherwise one might expect more racial graffiti from the all black school. Of the male produced graffiti at School 3, 26.3% was racial in character compared to only 1.7% of the female produced graffiti. Although girls contributed a smaller percentage of racial content graffiti, when the three categories of racial content (general, racial, racial insults and racial/sexual insults) are compared by sex we find racial content independent of sex. In other words, female restrooms are as likely as male to yield insulting and sexually insulting racial graffiti ($x^2 = 4.46$, $df = 2$, n.s.).

As Table 1 indicates, School 3 alone produced over half of the total amount of graffiti from all four schools. School 3 is different from the other three schools in the study by being the most heterogenous student body, both by socioeconomic levels and racially. It would seem that heterogeneity increased the production of graffiti possibly as a result of greater turmoil or stress resulting from the interface of differences.

The category drugs was also established *a priori* because of the recent widespread concern of drug use among young people. However, only School 4 (USE/W) showed drug related graffiti to any extent, with the males accounting for the total amount of the male drug graffiti and the females accounting for 92% of all female drug graffiti.

One content category of interest (homosexuality) was absent. Several developmental theories view adolescence as a time of homosexual exploration and would predict homosexual content as a likely subject of restroom graffiti at the high school level. Previous studies (2, 7) attest to the large percentages of homosexual graffiti in public restrooms, particularly male. In all the data less than 1% could be categorized as homosexual.

If the theory that graffiti represent areas of conflict or "popular preoccupations" is correct, this high school population was overwhelmingly preoccupied with romance, as that category represents 51% of the total graffiti produced by both males and females. Miscellaneous comments, including names, account for 26% of the total graffiti, while sex takes a poor third

with only 14% of the total. All the social issues, politics, race, drugs, religion, etc. combined account for only 9% of the total graffiti.

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THE SELECTION AND EVALUATION OF INTERPERSONAL DISTANCES AS A FUNCTION OF LINGUISTIC STYLES*[1]

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SUMMARY

In the first of two experiments on interpersonal distance, 40 male and female white American college students listened to a recording of a speaker using four linguistic styles, and for each style placed themselves physically from a silhouette representing the speaker. Results generally supported the hypothesis that *S*s would select distances within the ranges of Hall's proxemic model, though intimate and public distances were less extreme than expected ($p < .001$). A second experiment with 24 similar *S*s utilized the same recording with *S*s placing checkmarks on a scaled distance form and completing bipolar adjective ratings for each interaction represented. Results strongly corroborated proxemic predictions ($p < .001$); regressions performed on adjective evaluations indicated Hall's functional descriptions for each distance are also the inferences *S*s are likely to draw from the interactions. The findings are discussed in terms of the predictive power of the proxemic model and the need for its inclusion of complicating factors occurring in natural settings.

A. INTRODUCTION

In his review of nonverbal communication Duncan (6) distinguished between structural and external variable approaches in the available literature. The structural variable approach searches for rules or structures governing what sorts of nonverbal behaviors may occur and the contexts in which they may occur. Work in kinesics (2) and paralanguage (4) exemplifies this structural approach. The external variable approach can be

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distinguished into indicative and communicative studies (7). Indicative studies explore the statistical relationship between a particular nonverbal behavior and another variable (e.g., sex, interaction task, personality, etc.), while communicative studies focus on meanings which observers ascribe to particular nonverbal behaviors.

In the study of interpersonal distance (IPD) Hall's (8) structural study of distance in the American culture presents four distinct zones for interaction—intimate, personal, consultative, and public—and suggests situations likely for their occurrence and their functional characteristics. His formulations have provided a framework for a good deal of the research on IPD.

The great majority of these proxemic studies can be classified as indicative. Primarily they demonstrate that IPD is affected by a wide variety of factors. Sommer (19, 21) has found that social setting and the task of the interaction produce regular variations in distance; Little (14, 15) demonstrated that distances are influenced by nationality of *S*, affective tone of the interaction, and degree of acquaintance between interactors; and several authors [*cf.* Horowitz *et al.* (11), Willis (22), Heshka and Nelson (10)] have reported sex differences; *viz.*, females tend to stand closer to others, as well as have others stand closer to them.

In addition to these variables Leginski and Izzett (13) demonstrated that the linguistic style being used between two interactors led listener-*S*s to estimates of IPD between the interactors which fell into the ranges suggested by Hall's model (8). Furthermore, these estimates appeared to be less susceptible to variations in the content of the interaction than to variations in the styles in which they were delivered. Since Hall's model of proxemics proposes that one can make inferences about others based on their selected distances (a communicative implication), Leginski and Izzett suggested that the manner in which one actor speaks to another might serve as a rough index of the nature of the interaction or the relationship between the interactors.

In the first experiment following, an indicative study is presented. *S*s are instructed to imagine that they are involved in an interaction with another represented by a life-size silhouette. The other is speaking to them in one of four linguistic styles [see Joos (12)]—intimate, personal, consultative, and public—and it is assumed that in these simulated interactions, *S*s will place themselves differentially from the silhouette. Specifically, distances within the ranges predicted by Hall's model should result for each of the four styles as follows: intimate, contact to 1.5 feet; personal, 1.5 to 4.0 feet; consultative, 4.0 to 12 feet; public, 12 feet and beyond. In addition,

because of certain cultural expectations regarding males and intimacy, it was expected that a male speaker was not likely to draw a male *S* within the intimate range, while this pattern would not obtain between females or between mixed sex dyads [*cf.* Little (15)]. In situations involving the personal linguistic style, predictions were somewhat problematic, as most previous studies have used same-sex dyads (14, 22), or examined confounding experimental factors (e.g., 5, 10). Generally, however, females were expected to stand closer to one another than males (14), but in mixed sex dyads females were expected to stand farther from a male speaker than would males from a female speaker (5). In short, an interaction was expected in the intimate and personal styles between sex of speaker and *S*; however, on the basis of previous data (13), no differences for sex of *S* or speaker were expected in the consultative and public styles.

In the second experiment following, a communicative study is presented. The dynamic approach of the first experiment is abandoned, and *S*s are asked to estimate their distance from the silhouette on a printed distance scale. In addition, they give evaluative ratings of each of the interactions on a series of bipolar adjectives dealing mainly with immediacy notions (16) for each of the linguistic styles. The concern here was in exploring one assertion of proxemic theory—that one can make inferences about another based on his IPDs. More specifically, the interest was in which evaluations would correlate most highly with *S*s' distance estimates and consequently which evaluations might then be considered likely inferences drawn from another's IPD behavior.

B. Experiment I

1. *Method*

a. Subjects. Forty-three *S*s were recruited from introductory psychology courses at State University College at Oswego. Data from two of the *S*s who were not white native-born Americans and one who remained immobile for the entire experiment were discarded. The remaining 40 *S*s consisted of 20 males and 20 females participating to fulfill a course requirement.

b. Materials. Each of eight passages was recorded by a male and female student from the drama department.[3] There were two passages for each of the four linguistic styles. The contents of the tapes were as follows: public—speeches on democracy and education; consultative—course work

[3] The authors wish to thank Ms. Cheryl Smith and Mr. Terry Fisher for their assistance.

discussed by a student to his professor and instructions about typewriters; personal—description of an incident at a party and an adventure during an automobile trip; intimate—comforting someone and disclosing a sensitive issue from one's past. This content was either obtained from published documents, created by the Es, or improvised by the actors. The final tape segments ranged from 15 to 29 seconds with an average length of 20.7 seconds. Although an attempt was made to record the tapes at a consistent volume, *S*s did report that variations in volume were detectable. The final tape segments were rerecorded in two separate randomization patterns.

Four judges listened to the 16 tapes of the male and female actors and indicated on a 12-point scale the extent to which the way the actors were speaking reflected an intimate interaction (1-3), a casual, friendly interaction (3-6), a formal, business-like interaction (6-9), or a public address (9-12). The mean ratings, respectively, for the appropriate tapes were 2.81, 4.62, 8.12, and 11.44. A Spearman-Brown prediction coefficient between the judges' ratings indicated a great deal of agreement ($r = .97$) and that the tapes adequately reflected the styles they were intended to reflect.

The *S*s stood before one of two white cardboard front-view silhouettes of a male or female. The male silhouette was 5′9″ tall and of average build and the female was 5′2″ tall and somewhat petite. The silhouettes were placed against a folding screen, and in front of the screen the floor was marked into one-foot distances from one to 15 feet.

c. Procedure. Once introduced into the experimental room the *S* began to hear a tape recording which first contained instructions for the experiment. He was told to imagine the person speaking in each of the tape segments was interacting with him and that the silhouette represented this speaker. The *S* was to place himself as close to or far from the silhouette as he felt was comfortable given the manner in which the speaker was addressing him. He was to signal the *E*s, who sat behind a one-way glass, when he was at his chosen distance. The *E*s, who were deaf to the tapes being played, then recorded the distance to the nearest half-foot.[4]

The *S* responded to eight tape segments delivered either by the male or female actor, and for each segment assumed a distance from the silhouette. The design is a 2 (sex of subject) × 2 (sex of speaker) × 4 (linguistic style) factorial design. After the eighth tape was completed, the *S* was instructed

[4] The first 10 *S*s were run by the first author and Ms. Bev Kenyon. Interjudge reliability was so high ($r = .997$) that it was decided only one judge was necessary. All subsequent *S*s were run by Ms. Kenyon.

to turn off the tape recorder. At the time the *E* re-entered and explained the purpose of the study to the *S*.

2. *Results and Discussion*

Each linguistic style was represented by two tapes in the experiment. In order to obtain one dependent measure for each style, *S*s' two distances for each style were averaged. Preliminary *t* tests revealed that in no case were the appropriate pairs of tapes significantly different (all $ts < 1.0$).

The resulting distances were submitted to an anlysis of variance. First, a significant effect for sex of speaker was found ($F = 4.20$; $df = 1, 36$; $p < .05$). *S*s generally stood about one foot closer to the female silhouette than to the male (4.49 *vs.* 5.51 feet). There is no evidence for an effect due to sex of *S* ($F < 1.0$) nor an interaction between sex of *S* and speaker ($F = 1.52$).

A second significant effect obtained for linguistic style ($F = 106.01$; $df = 1, 36$; $p < .001$). The respective means in feet for each style were as follows: intimate, 2.24; personal, 2.80; consultative, 5.79; and public, 9.18. With the exception of intimate and personal all pairs are significantly different ($p < .05$) as determined by a Newman-Keuls procedure. It is interesting to note that neither the intimate nor public tapes produced distances in accord with Hall's model or studies done previously by the authors (13). The general effect seems to be a lessening of the public distance (even though *S*s could stand as far from the silhouette as 16 feet) and an apparent absence of intimate distance, at least as it is specified in the model.

In order to determine whether the predicted interactions between sex of *S*, sex of speaker, and the intimate and personal styles would occur, the data were analyzed only for these factors. As in the above analysis, the female speaker generally drew *S*s closer (2.15 *vs.* 2.89 feet for the male), though this emerged only as a tendency ($F = 2.93$; $df = 1, 36$; $p < .10$). While a significant difference occurred between the two linguistic styles ($F = 7.924$; $df = 1, 36$; $p < .01$), there was no indication of the predicted interaction ($F < 1.0$). Examining the means in the various conditions indicated only partial support; *viz.*, in same-sex dyads males tended to stand farther apart than did females in both the intimate (2.8 *vs.* 1.6 feet between females) and personal (3.22 *vs.* 2.25 feet between females) styles, but in the personal style there are no differences for mixed-sex dyads (2.81 and 2.82 feet).

The data from this study do not fit Hall's model as well as expected. In

particular, when *S*s were instructed to assume a comfortable distance from a "speaking" silhouette, they appeared to prefer intimate and public distances which are not as extreme as those the model specifies. Several possibilities suggest themselves.

One lies in the tapes themselves: specifically, the tapes may not have been as indicative of the styles as could be desired. Examination of the judges' ratings of the tapes indicates that intimate tapes fell within the appropriate range (1-3) but at the extreme of this range (2.81). While such a high rating might help explain why *S*s generally did not stand within intimate distances when hearing these intimate tapes, a similar explanation fails to account for the results in the public situation. The latter tapes were judged as quite reflective of the public style (11.44 rating in range 9-12) and yet *S*s stood only 9.8 feet away. Thus, it appears the tapes are not entirely the source of the more restricted range observed in the data.

Second, the silhouette left something to be desired. In order to obtain a degree of experimental control and eliminate irrelevant or confounding factors, a stark silhouette without overtly esthetic or physiognomic features (*cf.* 1) was favored. Some *S*s were observed to react quite naturally to the silhoutte—assuming relaxed postures, touching it appropriately, laughing, etc.—while most remained quite wooden. Thus, the silhouette may have been insufficiently realistic and consequently *S*s were disinclined to behave as if they were in a realistic situation.

The final and more likely source of the restricted range of distances is perhaps in the methodology itself. While the authors previously (13) found corroboration of distances predicated by Hall, this was with a printed distance form which *S*s checked. Other authors [especially Little (14)] have found fairly significant differences in distances with changes in methodology. In particular, Little's *S*s employed consistently greater distances when maneuvering two live actresses than when positioning two scaled-down plexiglass silhouettes. In order to determine to what extent the distances in the present study were due to the methodological *vs.* other factors, the experiment was replicated with the use of the printed distance form employed previously.

In addition, *S*s were requested to give evaluative ratings of each interaction in order to determine which evaluations (and groups of evaluations) correlated most highly with each of the taped segments. In accordance with Hall it was predicted that factors reflecting personal intimacy, involvement, and affect would correlate most highly with the intimate tapes and

least with public tapes. Other constellations of factors were expected for the remaining tapes, but specific predictions were not made.

C. Experiment II

1. *Method*

a. Subjects. An equal number of male and female *S*s were recruited from introductory psychology courses at the College at Oswego. A total of 26 *S*s participated, all of whom were white native-born Americans. Data of two *S*s were randomly omitted to facilitate analysis.

b. Materials. The same taped segments used in Experiment I were employed, as were both the male and female silhouettes. *S*s also had an eight page booklet, one page for each tape segment. At the top of each page was a distance form, scaled one centimeter to a foot. The line was marked into feet and labeled at 1, 5, 10, and 15 feet with a separate line labeled "beyond 15 feet." A small box at the zero end of the scale indicated the silhouette. Below the distance scale were 12 adjective pairs, arranged in a semantic differential style. The adjective pairs were interesting/uninteresting, unfriendly/friendly, familiar/strange, work/play, tense/at ease, open-minded/closed-minded, nonintimate/intimate, involved/uninvolved, formal/informal, inconsiderate/considerate, obnoxious/not obnoxious, private/public.

c. Procedure. *S*s were run in same-sex groups in sizes of 6-7. When all *S*s were assembled, the booklets were distributed and a set of tape recorded instructions was played. These told the *S* to imagine that the silhouette—either the male or female silhouette was in full view of the *S*s—was speaking to him. After listening to each of the tape segments, they were to decide about where they would be standing if someone were speaking to them in that manner, and to mark that distance on the scale. If they felt they were touching the speaker, their checkmark was to go inside the small box: if they felt they were standing beyond 15 feet, they were to check the appropriate line. They then made ratings on the 12 adjective pairs. A total of eight tape segments was heard. The design duplicated that of Experiment I.

2. *Results and Discussion*

Preliminary t tests revealed no differences between the tapes within the appropriate style pairs (all ts < 1.0). Pairs were averaged to yield one score

on each of the dependent variables for the four styles, and these data were submitted to an analysis of variance.

There were no significant differences for sex of *S*, sex of speaker, or the interaction between these factors (all Fs < 1.0). Thus, the female speaker failed to yield overall closer distances, as she did in Experiment I. Although there seems no clear rationale for this failure, one suggestion is that the size of the female silhouette (i.e., petite) was more salient to *S*s actually approaching her than to *S*s seated and at some distance from her. Her small stature thus might have encouraged closer distances in the former situation.

Distance estimates for the linguistic styles were once again highly significant ($F = 335.41$; $df = 1, 20$; $p < .0001$). However, the resulting means indicated strong corroboration for predictions derived from Hall's model; the means, in feet, in their respective order are as follows: intimate, 1.39; personal, 3.88; consultative, 7.76; and public, 14.56. There were no indications of interactions between the linguistic styles and other factors.

In order to determine whether the interactions predicted above between sex of *S* and speaker and intimate and personal styles obtained, the data were analyzed for these factors only. While the means were in the predicted directions, the effect did not reach significance ($F = 1.69$). This second failure to obtain significant differences suggests that linguistic style as an indicative variable does not appear to facilitate some of the sex difference in IPD other authors have reported.

Data from the 12 adjective pairs were also submitted to analysis of variance. Not surprisingly there were significant differences for the four linguistic styles on all adjective ratings except open-minded *vs.* closed-minded. The resulting means are reported in Table 1. Generally, intimate tapes received ratings of high immediacy, with the interesting exception of a relatively high tension (low score on ease) rating. In part this is undoubtedly due to the topics of intimate tapes—consolation and disclosure—reflecting tense moments, though still of an intimate nature.

The distance and adjective-rating data were submitted to further analysis.[5] Since the statistical procedures utilized on these data usually are employed when there is a more sizable *S* sample, the data may not prove to be reliable. However, since they lend good support to Hall's model and have communicative implications, they deserve at least some attention. In each condition we followed the following procedures. First, correlations for

[5] The authors wish to thank Dr. Alan Bostrom for his patient assistance with the analysis of the data of this section of the results.

TABLE 1

MEANS [a] AND CORRELATIONS BETWEEN DISTANCE ESTIMATES AND ADJECTIVE RATINGS FOR FOUR LINGUISTIC STYLES (EXPERIMENT II)

	Linguistic style								
	Intimate		Personal		Consultative		Public		
Predictors	X	r [b]	X	r	X	r	X	r	$p \leq$ [c]
Distance	1.39 [d]		3.88 [e]		7.76 [f]		14.56 [g]		.0001
Interesting	5.69 [d]	−.09	4.98 [d]	−.20	3.23 [e]	−.26*	3.79 [e]	(.01)	.0006
Friendly	6.08 [d]	(−.04)	5.90 [d]	−.19*	4.02 [e]	−.05	3.52 [e]	(.03)	.0001
Familiar	5.40 [d]	(.00)	5.50 [d]	.03	3.69 [e]	−.14	3.90 [e]	−.39	.002
Play	3.96 [d]	−.29	5.62 [e]	(−.02)	1.73 [f]	−.22*	1.83 [f]	.16*	.0001
Ease	2.65 [e]	(.01)	5.79 [d]	.05	4.04 [f]	(−.01)	3.54 [f, e]	(.01)	.0001
Open-minded	4.67 [d]	−.17	4.50 [d, e]	(−.01)	4.08 [d, e, f]	.15	3.65 [f]	.10	.079
Intimate	5.90 [d]	−.53*	4.62 [e]	−.18*	2.17 [f]	(.10)	1.67 [f]	.05	.0001
Involved	6.35 [d]	−.44*	4.79 [e]	−.03	4.83 [e]	(−.08)	4.94 [e]	.07	.0055
Informal	6.27 [d]	−.20	6.52 [d]	−.40*	3.23 [e]	−.12	1.60 [f]	−.13	.0001
Considerate	5.60 [d]	−.47*	4.73 [e]	.16	4.25 [e]	.16	4.23 [e]	−.04	.0021
Private	6.67 [d]	−.26	5.27 [e]	(.00)	2.75 [f]	−.11	1.29 [g]	−.51*	.0001
Not obnoxious	5.58 [d]	.09	4.98 [d]	−.08	4.52 [d]	.45*	4.62 [d]	−.31*	.043
R^2: 9 predictors		.51		.40		.48		.67	
R^2: * predictors		.41		.27		.35		.52	
F		< 1.0		< 1.0		< 1.0		< 1.0	

Note: The three asterisked correlations under each condition indicate the smallest number of predictors accounting for the largest amount of variance. The R^2s yielded by these predictors are also shown under each condition.

[a] Means for distance range from 0 (touching) to 16 feet, while adjective ratings range from 1 to 7 with higher ratings indicating the adjective applied strongly.

[b] Correlations in parentheses were eliminated from the analyses (see text), leaving nine predictor variables in each condition for calculating R^2.

[c] Significance level for differences between means.

[d] Means not sharing a letter in common are significantly different by a Newman-Keuls procedure.

distance estimates and evaluations were determined. The three evaluations with the lowest correlations in each condition were dropped (necessitated by a limitation of computer facilities; the average absolute r value of all omitted evaluations was .025). These can be seen in Table 1.

Second, the remaining nine evaluations were used as predictor variables for calculating coefficients of multiple determination (R^2). This coefficient is always highest when all predictor variables are employed; i.e., most of the variance is accounted for by these variables [see Hays (9, p. 572)]; This R^2 for each condition appears in Table 1.

Third, we made a number of passes through the data, each time attempting to eliminate a larger number of predictors in order to end up with the smallest number of predictors accounting for the largest amount of variance. This procedure will be recognized as a stepwise regression (18). With each pass through the data, the resulting R^2 would be compared to the R^2 for all nine predictors to determine if the values were significantly different; i.e., such a difference would indicate a significant loss in variablility accounted for (3). With the use of this procedure it was possible in all four conditions to obtain a smaller set of predictors without significant loss in variability accounted for. These final predictors are summarized in Table 1 along with the R^2 they yielded.

In all conditions the predictors lend support to interpretations derived from Hall. In the intimate condition (predictors: intimate, involved, considerate) a high degree of affective, behavioral, and cognitive engagement is observed, and this attitudinal intensity is typical of the intimate distance. While these predictors convey a positive interaction, Hall reminds us that the intimate distance can be employed for unpleasant engagements, and Meisels and Dosey (17) have demonstrated S's use of this distance when angry. A determination of the positivity or negativity of an interaction at intimate distances is usually not difficult; however, it seems probable that different predictors are relevant in each of the situations, with only a high degree of attitudinal engagement a common feature.

With less intensity, attitudinal engagement is also a likely inference from the personal distance. The predictors here (informal, friendly, intimate) definitely convey a positive relationship which Hall discusses as the major function of this distance. In the consultative condition the final predictors of the consultative distance (not obnoxious, uninteresting, work-like) correspond quite well with the portrait sketched by Hall of a distance used for interviews, business, and between strangers. Its major hallmark is its neutrality, impersonality; the interaction is usually business-oriented and

neither positive nor negative and, consequently, it is both the style and distance for those who lack or are controlling their involvement with another.

Finally, in the public condition, distance estimates were best predicted by public, formal, and not work-like evaluations. The latter predictor can be interpreted by recalling that work-like situations involve active participation of the actors while, as Hall states, at public distances the active speaker is primarily concerned with conveying information to a passive audience. Public is a style and distance both formal and uninvolving, and one to which our college student *S*s are excessively exposed. Perhaps for this reason the predictor obnoxious could not be eliminated without significant loss in variability accounted for. A population to whom this style and distance were more novel might not produce the same predictor evaluation.

While the above data are based on relatively small samples, they lend support to the communicative implications of the various distances described by Hall. However, the data that are distinctly troublesome are the inconsistent distance estimates between the two studies when only the response mode was varied. Several articles in IPD have reported similar differences with only minor variations in method [see Little (14), Dosey and Meisels (15)], and other articles frequently report distances that do not correspond with Hall's model [e.g., Little (15), Sommer (20), Willis (22)]. However, if there is consistency to the data on distance, it is of an ordinal nature. Despite the studies that fail to confirm the explicit quantitative predictions of proxemic theory, there are no reported studies that contradict the expected ordinal comparisons. For example, in the first experiment, intimate and public estimates were not in the appropriate ranges, but they were at the extremes of the ordering of the estimates. Little (15) reports similar results. Thus, it is perhaps safest to conclude that our present understanding of distance phenomena is limited to ordinal comparisons, and while Hall's model presents explicit ranges, the operation of a number of explored and as yet unexplored indicative parameters may alter the model's explicit predictions.

D. General Comments

Before concluding, we should consider to what extent demand characteristics have produced the effects reported above. It is clear that to some extent the results can be attributed to experimental demands, to the *S* imagining the types of situations the *E*s had in mind and assuming dis-

tances they felt were appropriate—standing close with intimate tapes, far with public tapes. However, demand characteristics cannot explain why the distances fall where they do, especially in cases when they are in the predicted ranges. In these instances we can only assume that Hall's structural model does indeed describe uniformities in proxemic behavior of which *Ss*' behaviors are genuine manifestations. It is possible that the proxemic model needs some revision, however. Given the large number of studies which fail to produce model-prescribed distances, it is clear that such distances cannot always be correctly anticipated by the model.

Perhaps the model needs to move explicitly in the direction of dealing with the indicative parameters that seem rather inextricably confounded with interpersonal distance—e.g., type of relationship, social setting, topic of conversation, style of conversation. While the studies above sought to explore only the effects of linguistic style on distance, in naturalistic settings style would be confounded with the other factors mentioned, rendering problematic any statement of causal association. The relationship between lovers or friends tends to make most matters intimate and personal with resultant effects on distance and style. In addition, the impersonal matters they discuss can suddenly become personal or intimate by a change in style, distance, a glance, a touch. The effects of setting also must be incorporated: the effects of background noise, presence of potential eavesdroppers, temperature, density of crowds, public *vs.* nonpublic places, etc. Thus, proxemic theory should begin to honor the host of complicating factors that people seem so quickly to take into account when assuming distances and in making attributions about others from their distances. Knowledge of the interactors' relationship, the setting, their topic, and their style seems minimal before we can make predictions for their distance behavior. And finally, given the fluctuations that occur in distance with minor changes in dependent measurement, it might be prudent for IPD researchers to adopt a more uniform and naturalistic methodology that would facilitate experimental comparisons.

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CROSS-CULTURAL NOTES

Under this heading appear summaries of studies which, in 500 words or less, provide comparable data from two or more societies through the use of a standard measuring instrument; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, 99 139-140.

CHANGES IN NAVAJO RESPONSES TO THE DRAW-A-MAN TEST*

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In 1936, Steggerda reported a significant 24-point disparity between the mean scores of Navajo boys and girls on the Goodenough Draw-A-Man Test (DAM).[1] The boys averaged one standard deviation above the national mean with a score of 115. This superior performance of Navajo boys (later replicated by Havighurst *et al.*)[2] was attributed to the greater and varied experiences in representational art granted them in a subculture noted for its artistic achievements. That is, only males are allowed to engage in visually stimulating Navajo rituals and ceremonies. Further, males alone are permitted to work artistically with leather and silver. Dennis posited that incidental to the increasing acculturation of the Navajo people, a parity of exposure to the artistic elements of the dominant culture would occur. This was expected to increase the DAM scores of girls and hence reduce male-female differences.[1]

The present study investigated the hypothesis of Dennis with 44 Navajo children (23 boys, 21 girls) from a kindergarten class and the first, second, and third grades in a small Southwestern community. The Navajo group from which the *S*s were selected appeared to be rapidly losing its separateness from the dominant white culture.[3] This is shown by an increasing

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[1] See Dennis, W. Goodenough scores, art experience, and modernization. *J. Soc. Psychol.*, 1966, 68, 211-228.

[2] Havighurst, R. J., Gunther, M. K., & Pratt, I. E. Environment and the Draw-a-Man Test: The performance of Indian children. *J. Abn. & Soc. Psychol.*, 1946, 41, 50-63.

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geographic proximity, and the enrollment of Navajo children in English-speaking public schools. Since the DAM covaries with other measures of verbal and performance intelligence (i.e., it is not independent of other assessments of intelligence),[4] scores on the DAM were analyzed separately and in conjunction with data on the Peabody Picture Vocabulary Test (PPVT) and the verbal and performance sections of the Wechsler Intelligence Scale for Children (WISC).

Navajo boys obtained a mean DAM *IQ* of 91.4 in contrast to a mean of 79.7 for girls. This difference was not significant ($t = 1.47, p > .10$). Boys also had higher mean scores on the PPVT (61.6 *vs* 51.6) WISC Verbal (66.3 *vs* 62.6) and WISC Performance Scales (97.5 *vs* 88.2). Only the latter mean difference was significant ($t = 2.14, p < .05$). A multivariate analysis (Wilkes Lambda) did not indicate overall mean differences on the four intelligence variables, suggesting that the finding with regard to WISC Performance may have been a chance occurrence.

Although the mean discrepancy between boys and girls on the DAM was not significant, both groups unexpectedly showed a marked decline in DAM scores in comparison to their counterparts in the previous studies. Observations of the comparatively impoverished living conditions of the children in the present study suggest that they may have had limited exposure to sources through which the representational art of the dominant culture are presented (i.e. television, the visual media). The ostensive detachment of these children from traditional Navajo values may have lessened the disparate artistic stimulation for boys and girls posited by Dennis, leading to greater equality in their mean DAM scores. The possible lack of supplementary enriching experiences from the dominant culture may have resulted in the lowered performance of both groups on the DAM test.

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The Journal of Social Psychology, 1976, 99, 141-142.

STATISTICAL VARIANCE AS AN INDEX OF CULTURAL DIFFERENCES*[1]

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The search for modal personality and pervasive traits has been counterbalanced in culture and personality research by the recognition of within group variability as a factor in culture change and invention.[2] Cultures may also differ considerably in the range of behaviors available to the individual in particular settings, from those in which much is prescribed and proscribed, to those that grant maximum latitude. In addition, response variability in cross-cultural analysis may reflect differential stimulus value, a point of potential interest in comparisons of culture groups. Research methods specifically appropriate to this emerging strategy are yet to be invented. While variability analysis has been occasionally used in social science, cross-cultural researchers seldom examine statistical variance.[3]

As part of a larger study,[4] 48 Hawaiian and 48 Caucasian fourth and fifth grade children were randomly assigned to groups receiving praise, no reinforcement, or criticism in an individually administered marble-dropping game.[5] The Hawaiian children were all residents of a Hawaiian Homelands homestead. Leases to these lands are restricted to persons who can demonstrate to a public agency 50 percent or more Hawaiian ancestry. Previous research[4] suggests the population of this community to be rela-

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[1] Preparation of this manuscript was supported in part by an NIMH research grant to the Bernice P. Bishop Museum (Grant #1Rol-MH-15032-05); and by the Mental Retardation Research Program, the Neuropsychiatric Institute, University of California, Los Angeles. Our appreciation is due Alan Howard and Jim Turner. Reprints are available from the second author at the address shown at the end of this article.

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tively homogenous in terms of socioeconomic factors and socialization practices.

An analysis of variance showed no differences in response rates in any of the conditions. However, a test of homogeneity of variance indicated that equal variances could not be assumed ($F_{max} = 18.33, p < .01$). The variability of criticized Caucasians and of both ethnic groups under praise and no reinforcement was similar. After criticism was introduced, Hawaiians became increasingly variable—differing from criticized Caucasians at a statistically significant level on the second ($F_{max} = 3.33, p < .05$) and third ($F_{max} = 3.06, p < .05$) minutes, and approaching significance on the fourth minute of the four-minute experimental period.

Middle class Caucasian children are often responsive to signals of correctness (either "right" or "wrong"), which can function as a cue to "do it right" and receive a later reward.[6] The stimulus value of criticism to a Hawaiian child may not have this function of cueing continued effort. The dominant response to what is probably an aversive situation would thus take other forms—as it appears to with lower class Caucasians. Gallimore, Boggs, and Jordan suggested that social affiliation as opposed to personal achievement is of primary importance among Hawaiians, for whom perhaps it is the fact of being criticized, rather than being told of poor performance that becomes the motivating stimulus; and the response is likely to be to escape, not additional effort.

While this explanation for the effects of criticism on Hawaiian behavior must be considered tentative, the fact of the differences in variability raises some interesting questions which would have been overlooked if only measures of central tendency had been considered. In any event, the results clearly indicate the potential usefulness of variance comparisons in cross-cultural research.

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REPLICATIONS AND REFINEMENTS

Under this heading appear summaries of studies which, in 500 words or less, provide useful data substantiating, not substantiating, or refining what we think we know; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, 99, 143-144.

EIDETIC IMAGERY *VERSUS* LANGUAGE SKILLS*[1]

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Data collected in cross-cultural investigations of eidetic imagery have suggested that there may be a negative correlation between the incidence of eidetic imagery and a number of related variables which may be grouped under "educational experience and sophistication"—i.e., years of schooling, knowledge of the English language, and acculturation. It appears that the greater the "educational experience" of a population, the less frequent is the incidence of eidetic imagery in that population. These observations suggest the hypothesis that children with "subnormal language skills"—i.e., with significant difficulties in the language arts (reading, writing, and verbal comprehension)—would have a higher incidence of eidetic imagery than children at the same grade level with "normal language skills" (no significant difficulties in the language arts).

*S*s were 30 male and 30 female English-speaking children recruited from the same school in Brossard, Quebec, a suburb of Montreal. Twenty were selected from each of three grade levels—i.e., kindergarten, grade 2, and grade 3. *S* selection was based on the judgments of language arts specialists who were actually several teachers in the school, responsible for organizing language programmes for children in the grade levels sampled. Half of each sample constituted a "subnormal" language group, as determined by

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[1] The author thanks Professor Leonard W. Doob, Professor Norman R. Haber, and Professor Nancy Frasure-Smith for their valuable assistance. Reprint requests should be sent to the author at the address shown at the end of this article.

the language specialists; the other half of each sample constituted a "normal" language group, as determined by the same specialists. The standard testing procedure developed by Haber and Haber[2] was used, with the visual material presented in slide form. The criteria for rating eidetic imagery merged the criteria of Doob[3] with those of Siipola and Hayden.[4]

Results show that two children reported "Some EI" in kindgergarten, six in Grade 2, and one in Grade 3. The only category of eidetic imagery found was "Some EI." Doob's other categories[3] of eidetic imagery—i.e., "Mostly EI" and "All EI"—were not indicated by the present data. Over all samples tested, nine children were classified as "eidetikers," six of whom belonged to the normal language group. The difference with respect to language skill was not statistically significant. The nine eidetikers were distributed among the three grades in no consistent manner.

Two alternative interpretations of the findings suggest themselves. The first alternative is that the hypothesis is false for the tested samples. The second alternative calls attention to the heavy emphasis on language in the actual testing situation. Throughout the testing, the subnormal language group children seemed to be quite reticent to use language. Conceivably even if they produced eidetic images, they might have feigned ignorance of the presence of eidetic imagery rather than cause themselves embarrassment by verbally describing these images.

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The Journal of Social Psychology, 1976, 99, 145-146.

INITIAL POSITION, RATIO OF ARGUMENTS, AND INDIVIDUAL SHIFTS IN DECISION*

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DONALD G. FISCHER, KENNETH MCDOWELL, AND FABIAN BOULANGER[1]

Ebbeson and Bowers[2] suggest that the proportion of risk to caution arguments accounts for a significantly larger proportion of variance in group shift scores than stated initial position information. Although initial positions and average choice shift on an item were significantly correlated ($r = -.72$, $df = 10$, $p < .01$), only the variance accounted for by proportion of arguments was significant ($F = 6.60$, $df = 1/9$, $p < .05$), while the additional variance accounted for by initial position was not significant ($F = 1.15$, $df = 1/9$, $p > .25$). Fischer and Boulanger[3] found that initial score information was more important than proportion of argument information, although proportion of argument information added significantly to predictability.[4] Stepwise regression analyses produced five variables that were significant predictors of individual shift scores. Since the amount of variance accounted for and regression weights assigned to each variable are dependent upon the number and kind of variables entering the equation,[5] a more definitive test of Ebbeson and Bowers' conclusion would require a reanalysis with the use of (*a*) initial score information (I_1 scores) and (*b*) proportion of arguments as dependent variables and individual shift scores as the dependent variable. That is the purpose of the present paper.

Eighty male volunteer students enrolled in Introductory Psychology at the University of Saskatchewan were randomly selected and assigned to 20 four-man groups. The usual format for risk-shift studies was followed. *S*s

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[1] Now at the University of Calgary, Alberta.

[2] Ebbeson, E. B., & Bowers, R. J. Proportion of risky to conservative arguments in a group discussion and choice shift. *J. Personal. & Soc. Psychol.*, 1974, 29(3), 316-327.

[3] Fischer, D. G., & Boulanger, F. Some predictors of individual shifts in decision. Paper presented at the Annual Canadian Psychological Association meeting, Windsor, Ontario, June, 1974.

[4] Although Ebbeson and Bowers were dealing with group shifts whereas Fischer and Boulanger were concerned with individual shifts, the former can easily be computed by averaging the individual shifts of the group members.

[5] Kerlinger, S. N., & Pedhazur, E. J. Multiple Regression in Behavioral Research. New York: Holt, Rinehart & Winston, 1973.

responded to a Choice Dilemma Questionnaire containing either (*a*) five risk oriented items, or (*b*) five caution oriented items three times: I_1, in isolation prior to group discussion; G, as a group; and I_2, as individuals again following the group discussion. Discussion sessions were videotaped and content-analyzed for the number of risk, caution, and neutral statements made by individuals. Total number of risk, caution, and neutral statements for each discussion item were computed, and the ratio of risk to caution arguments was determined. With the use of individual shift scores as the dependent variable, and proportion of arguments and I_1 scores as the independent variables, five separate stepwise regression equations were computed.*

Results indicated that I_1 score information was more useful and more important than ratio of arguments regardless of the order of entry into the equation. Ratio of arguments accounted for an average of 9.3% variance when it was entered first, and 14.8% when entered second. I_1 score information accounted for an average of 28.6% variance when it was entered first, and 34.3% when entered second. The average standardized regression weights were $b = -.44$, $b = -.59$ for ratio of arguments and I_1 scores, respectively. Results support the Fischer-Boulanger position that I_1 score information is more important than ratio of arguments in predicting individual shifts in decision following discussion, although ratio of arguments does add significantly to the predictability of the equation and may indeed reflect a necessary condition for shifts to occur. In any event it seems that Ebbeson and Bowers' statement that ". . . shift in risk following group discussions is largely a function of the proportion of risky to conservative arguments . . ." (p. 376) is premature.

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* Further information regarding the assignment of *S*s to analyses can be obtained from the first author.

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INTERNAL-EXTERNAL CONTROL AND ATTRIBUTION OF RESPONSIBILITY FOR A POSITIVE ACCIDENT*

Clermont County Mental Health Center and Illinois State University

RUTH HYLAND AND MERRI-ANN COOPER[1]

Sosis[2] reported that when asked to assign responsibility to another for an unfortunate accident, Internals (on Rotter's I-E Scale)[3] ascribed significantly more responsibility to the defendant than did Externals. Phares and Wilson obtained similar findings.[4] Projection of *S*s' feelings of internal or external control onto the defendant can be employed to explain both sets of data.

The projection notion, if tenable, should work for positive, as well as negative, occurrences. Therefore, Internals should also attribute more responsibility to the actor for a happy accident than do Externals.

The *S*s in the present study were 56 introductory psychology students at the University of Kentucky. On the basis of their I-E scores, *S*s were trichotomized into Internals, Moderates, and Externals.

Two weeks after being given the I-E Scale, *S*s were asked to read a brief account of a happy accident in which a chemist was mixing some chemicals without adequate care and made an important discovery. He was, however, unsure whether he had mixed the chemicals he planned. *S*s were then instructed to fill out a questionnaire about the chemist's responsibility for the discovery.

Internals thought that he was more responsible than did Externals, while Moderates were intermediate ($F = 22.1$, $df = 2/55$, $p < .001$). Internals believed most strongly that the chemist mixed the chemicals he planned; Moderates were less certain; Externals were least certain ($F = 43.08$, $df = 2/55$, $p < .001$). Internals also decided that the chemist deserved more credit ($F = 54.9$, $df = 2/55$, $p < .001$), and more admiration ($F = 30.6$, df

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[1] Reprints are available from the second author at the Illinois State University address shown at the end of this article.
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= 2/55, $p < .001$) than Externals. Moderates were intermediate in these judgments.

These findings substantiate the previous research that peoples' feelings about their control over the outcomes of their own behavior are related to their judgments of others' responsibility. Davis has suggested, however, that externality is a method of preserving self-esteem in the face of failure and therefore should not affect judgments about success.[5] Indeed Davis and Davis found that though Externals felt less responsible than Internals for their own unsuccessful outcomes, the two groups did not differ when judging their successful outcomes.[6]

In an attempt to reconcile the present findings with those of Davis and Davis, it might be suggested that when judging others, Externals may be able to be "objective." But when judging themselves, the desire to take credit for a pleasant experience may overwhelm their general tendency to see events as externally caused.

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The Journal of Social Psychology, 1976, **99**, 149-150.

ETHNICITY OF SUBJECT AND TEST ADMINISTRATOR: THEIR EFFECT ON SELF-ESTEEM*[1]

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Although educators and social scientists have often characterized Chicanos as having negative self-esteem, the few studies in this area have yielded inconsistent findings.[2,3] An important variable that has received little attention is the ethnicity of the person who administers the self-esteem measure. The purpose of the present study was to investigate the relationship between self-esteem and (*a*) ethnicity of *S*, and (*b*) ethnicity of test administrator.

*S*s were 68 Chicano and 68 Anglo students matched with respect to sex, age, and grade in school. Half of the *S*s were 5th and 6th graders at an elementary school; the other half were 7th and 8th graders at a junior high school located nearby. At each of the two schools, one half of the students (Anglo and Chicano combined) were given the self-esteem measure by Dr. Martin, the other half by Dr. Martinez. The two testers were equated, except for ethnicity, on such variables as age, height, and length of hair. The self-esteem measure was an 18 scale semantic differential in which the *S* evaluated the concept "Myself as I Really Am."

The self-esteem of the Chicano students was no different from that of the Anglo students. Self-esteem scores were influenced by the ethnicity of the tester ($F = 5.62$; $df = 1,128$; $p = < .05$), by school grade ($F = 5.16$; $df = 1,128$; $p = < .05$), and by the interaction of ethnicity of tester and school grade ($F = 4.03$; $df = 1,128$; $p < .05$). Newman-Keuls analyses indicated that the elementary school children had more positive self-esteem and that self-esteem was not influenced by the ethnicity of the tester. In the case of the junior high students, ethnicity of test administrator had a

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[1] This research was supported in part by the Council on Research and Creative Work, University of Colorado. Requests for reprints should be sent to Albert Ramirez at the address shown at the end of this article.

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significant effect on self-esteem, with the Anglo tester producing more positive self-esteem scores for both the Anglo and the Chicano *S*s.

One possible interpretation is that the older students taking the self-evaluation test described themselves more positively when the test was administered by an Anglo, since it is usually an Anglo who evaluates them. Chicanos do not typically occupy positions of authority in the school system. Such an interpretation assumes a perception on the part of the student concerning power and authority differences existing between Anglos and Chicanos in our present society. Since these perceptions are a product of social learning, one would expect the older students to be more aware of such realities and be more influenced by tester ethnicity. Such an interpretation is also *post hoc,* and future research may indicate that other interpretations are more appropriate.

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SILENCE AND ROLE UNCERTAINTY*[1]

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Basso analyzed social situations in which the Apache keep silent, and concluded that silence is a response to unpredictability in social relationships.[2] He suggested that this might be a cross-culturally reliable phenomenon: where role requirements cannot be analyzed, expressive behavior is inhibited until prediction can be made as to how to behave. Loewenthal has some support for this with regard to the communication of self-definition via handwriting.[3]

In the present experiment a young male medical student introduced himself to 11 patients in a London hospital by saying that the nurse had asked him to take their pulse. During a two-minute session in which the pulse-taking occurred, the patient's speech acts were timed on a cumulative stopwatch, and the medical student responded appropriately with smiles and monosyllables. With five patients, a white coat and stethoscope were adopted: accepted signs of the doctor's role (doctor-role condition). These were not worn in testing the other six patients (uncertain-role condition). In the doctor-role condition patients spent a mean of 10 seconds talking. In the uncertain-role condition the mean was 1.25 seconds (Mann-Whitney $U = 1$, $p < .01$).

This is a simple but clear demonstration both of the effective use of dress in role-management[4] and of the way not-talking is as much a social act as is talking.

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* Received in the Editorial Office, Provincetown, Massachusetts, on December 30, 1974.
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[1] Thanks are due for the cooperation of patients and nursing staff of the Royal Free Hospital, London. Reprints are available from the second author at the address shown at the end of this article.

[2] Basso, K. H. "To give up on words": Silence in Western Apache culture. In P. P. Giglioli (Ed.), *Language and Social Context*. Harmondsworth, Eng.: Penguin, 1972.

[3] Loewenthal, K. Handwriting and self-presentation. *J. Soc. Psychol.*, 1975, 96, 267-270.

[4] See, for example, Stone, G. P. Appearance and the self. In A. M. Rose (Ed.), *Human Behaviour and Social Processes*. London: Routledge & Kegan Paul, 1971.

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VOLUME 75—January-June, 1967

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Mid-life attainment of the mentally retarded: A longitudinal study—W. R. BALLER, D. C. CHARLES, AND E. L. MILLER

VOLUME 76—July-December, 1967

Scalogram analysis of some developmental sequences of infant behavior as measured by the Bayley Infant Scale of Mental Development—R. KOHEN-RAZ
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VOLUME 77—January-June, 1968

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Sex differences in mental and behavioral traits—J. E. GARAI AND A. SCHEINFELD

Genetic Psychology Monographs *(continued)*

VOLUME 78—July-December, 1968

1. A theoretical and developmental investigation of delayed speech feedback—J. E. Waters
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VOLUME 79—January-June, 1969

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VOLUME 82—July-December, 1970

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Memory factors and school success of average and special groups of ninth-grade boys—M. Meeker and C. E. Meyers
Personality correlates of vocational planning—R. Barnett

VOLUME 84—July-December, 1971

1. Perceptual distortion as a function of stimulus objects, sex, naiveté, and trials using a portable model of the Ames Distorted Room—T. A. Gerace and W. E. Caldwell
Galvanotaxic behavior and reinforcement of fish *Brachydanio Rerio*—W. F. Flanigan, Jr., and W. E. Caldwell
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VOLUME 85—January-June, 1972

1. Children's understanding of negation as a logical operation—S. S. Feldman
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Genetic Psychology Monographs *(continued)*

VOLUME 86—July-December, 1972

The role of enduring orientations to the environment in personality development—W. C. Bronson
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VOLUME 87—January-June, 1973

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VOLUME 88—July-December, 1973

Adolescent marginality—A further study—J. H. Bamber
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The validity of parent-child socialization measures: A comparison of the use of assumed and real parent-child similarity with criterion variables—G. Count-van Manen
Racial preference and identification of black, American Chinese, and white children—D. J. Fox and V. B. Jordan
Obsessional neurosis: Etiology and biopsychological presuppositions. A comparative study involving Freudian and Piagetian theory—R. Pivetta
Dimensions of competence in young children—F. Ali
Differentiating children's symptom checklist items on the basis of judged severity of psychopathology—P. Doline and S. W. Zagorin

VOLUME 89—January-June, 1974

Transgression as a function of timing of punishment and age—T. A. Chandler
Perception of vocal expression of emotion by hospital staff and patients—H. Nash
Development of geometric imagery in five- to eight-year-olds—C. J. Brainerd and K. Vanden Heuvel
Modern logic and schizophrenic thinking—D. Y. F. Ho
Brain dynamism in visual illusions of motion—G. K. Yacorzynski
The immediate recognition of tachistoscopically presented visual patterns by backward readers—I. M. Clifton-Everest
Acquisition of the social desirability response—J. A. Walsh, C. T. Keasey, and D. M. Klieger
The adolescent antecedents of an ego model of coping and defense and comparisons with Q-sorted ideal personalities—N. Haan
Alfred Binet's remarkable questions: A cross-national and cross-temporal analysis of the cultural biases built into the Stanford-Binet Intelligence Scale and other Binet tests—M. W. Smith

VOLUME 90—July-December, 1974

A study of the relationship between physical transitivity and social transitivity—K. Feigenbaum
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VOLUME 91—January-June, 1975

Research approaches in illicit drug use: A critical review—S. W. Sadava
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Characteristics and correlates of parent-son interactions—T. Kotler
Longitudinal development of formal operations thought—E. D. Neimark
The effects of identifying objects on a concept matching task performed by four preschool groups—E. Levitt
Punishment and alternative response training as determinants of response inhibition—D. G. Perry and R. D. Parke
Social class and preschool language skill: I. Introduction—G. E. Kirk and J. McV. Hunt
Social class and preschool language skill—II. Semantic mastery of color information—G. E. Kirk, J. McV. Hunt, and C. Lieberman
Social class and preschool language skill: III. Semantic mastery of position information—J. McV. Hunt, G. E. Kirk, and F. Volkmar

VOLUME 92—July-December, 1975

Interrelationships among children's environmental variables as related to age, sex, race, and socioeconomic status—E. Peisach, M. Whiteman, J. S. Brook, and M. Deutsch
The child from five to six: A longitudinal study of fantasy change—by R. Z. Scheffler
Emotional impairment and achievement deficit in disadvantaged children—Fact or myth?—M. Kohn and J. Cohen
Psychological differentiation and the *A-B* dimension: A dyadic interaction hypothesis—W. D. Shows
Social class and preschool language skill: IV. Semantic mastery of shapes—J. McV. Hunt, G. E. Kirk, and C. Lieberman
Social class and preschool language skill: V. Cognitive and semantic mastery of number—G. E. Kirk, J. McV. Hunt, and F. Volkmar
Children's judgment of length and shift in the presence of an anchor stimulus as a function of stimulus presentation and verbal response—S. Salzinger and J. W. Patenaude
The role of attribution and self-perception in behavior change: Implications for behavior therapy—S. Kopel and H. Arkowitz
Linkages among concrete operations—L. Dimitrovsky and M. Almy
A theoretical and empirical approach to the study of development—M. M. Piechowski
Perceptions of aging parents in the context of disengagement theory—C. E. Lahniers

Genetic Psychology Monographs *(continued)*

VOLUME 93—January-June, 1976

Accelerated conservation acquisition and *IQ* gains by blind children—D. J. Lopata and R. Pasnak
Infant reactivity to stimulus-schema discrepancy—J. R. Hopkins, P. R. Zelazo, S. W. Jacobson, and J. Kagan
Proximity seeking attachment behaviors: A critical review of the literature—M. E. Lamb
Moral judgment: A comparison of two theoretical approaches—H. Gash
Imitation by second borns in adult-sibling dyads—A. F. Hodapp and J. C. LaVoie
Identification, moral character, and conceptual organization—H. Frank
Dimensions of adolescent psychopathology and their prognostic significance for treatment outcome—E. E. Lessing, M. Black, L. Barbera, and F. Seibert
The training and transfer of formal thinking tasks in college students—R. J. Ross, C. Hubbell, C. G. Ross, and M. B. Thompson
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AUGUST, 1976

(Manuscripts are printed in the order of final acceptance)

Interpersonal needs of Japanese-American and Caucasian-American college students in Hawaii 157
BY GERALD M. MEREDITH

Authoritarianism and racial prejudice in Australia: A reply to Thomas 163
BY JOHN J. RAY

Authoritarianism in Queensland: A reply to Ray 167
BY DAVID R. THOMAS

Prejudice towards Israelis of Oriental origin among Israelis of Western origin 171
BY YOEL YINON, ARIE ABEND, AND AMOS CHIRER

Effects of seating arrangement on group participation 179
BY RONALD L. MICHELINI, ROBERT PASSALACQUA, AND JOHN CUSIMANO

Violation of personal space as a function of sex 187
BY DOUGLAS R. BUCHANAN, RALPH JUHNKE, AND MORTON GOLDMAN

The effects of actual and attempted theft, need, and a previous favor on altruism .. 19
BY MARY B. HARRIS AND GEORGE C. SAMEROTTE

(OVER)

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The self-concept of delinquents in a behavior modification treatment program 203
By D. Stanley Eitzen

The voice of personality: Stereotyped judgments and their relation to voice quality and sex of speaker 207
By Charles D. Aronovitch

On the social law of effect 221
By Louis N. Gray, Maximilian H. Van Broembsen, Mary A. Kowalczyk, and J. Sherwood Williams

Physical attractiveness and the attribution of epilepsy 233
By Robert O. Hansson and Beverly J. Duffield

The validity of Charles Reich's typology of "consciousness" in modern society 241
By John B. Braithwaite, Valerie A. Braithwaite, Paul R. Wilson, and John S. Western

Body-cathexis and self-esteem: A reanalysis of the differential contribution of specific body aspects 251
By E. R. Mahoney and M. D. Finch

Explorations in the drive theory of social facilitation 259
By Phillip Shaver and Barry A. Liebling

Street addict values: A factor analytic study 273
By Richard Stephens, Stephen Levine, and Wesley Ross

Reference group theory, social comparison theory, and the study of politics 283
By David D. Dabelko

CROSS-CULTURAL NOTES

Social agents in children's happiness 289
By Usha R. Sidana, Ramadhar Singh, and Prabha Srivastava

REPLICATIONS AND REFINEMENTS

Birth-order compatibility and same-sex dyads: A replication 291
By Fredrick J. Scheidt and Mary E. Smith

Social facilitation theory and experimenter attractiveness 293
By John J. Hartnett, J. Gottlieb, and R. L. Hayes

Birth order and institutionalization of the aged 295
By J. Steven Berry and Robert O. Hansson

Salient attitudes: A test of Fishbein's linear model 297
By James T. Milord and Raymond P. Perry

The expression of belief in internal control as a strategic response 299
By Paul D. Cherulnik and Martin F. Sherman

Stereotypes, projection, and attraction 301
By Marc Wayner and Svenn Lindskold

Do subjects understand the choice dilemma questionnaire? 303
By Peter H. Reingen

CURRENT PROBLEMS AND RESOLUTIONS

Locus of control and student reaction to the Watergate break-in 305
By Richard M. Ryckman and Martin F. Sherman

Human nature ideology and democratic power ideology 307
By George F. Bishop

BOOKS RECENTLY RECEIVED 309

The Journal of Social Psychology, 1976, 99, 157-161.

INTERPERSONAL NEEDS OF JAPANESE-AMERICAN AND CAUCASIAN-AMERICAN COLLEGE STUDENTS IN HAWAII*

University of Hawaii

GERALD M. MEREDITH

SUMMARY

Despite the rapid rate of acculturation of Hawaii's ethnic groups, personality differences still persist at the third-generation level. The present study focused on the interpersonal needs of Japanese-American and Caucasian-American college students in Hawaii. Schutz' FIRO-B was administered to 238 *S*s, and the findings analyzed for both ethnic and sex differences. Ethnic differences were observed on the wanted control and expressed inclusion scales; sex differences were found on the expressed inclusion and expressed affection scales. Conceptualizations were presented to understand these differences.

A. INTRODUCTION

In many ways the acculturation pattern of Japanese Americans conforms to Hansen's dictum: "What the immigrant's son wishes to forget, the grandson wishes to remember" (2, p. 153). Numerous studies have focused on the acculturation patterns of first-generation (*Issei*), second-generation (*Nisei*), and third-generation (*Sansei*) Japanese Americans (8, 14). Recently, Sue and Wagner reviewed a significant portion of contemporary literature dealing with Asian Americans and observed: "The proclamation of Asians as being a successful minority is premature at best and totally inaccurate at worst" (18, p. 1). The *Sansei* appear to be searching for the roots of their ethnic identity (12).

In the case of Japanese acculturation patterns, Kitano (6) has emphasized the role of *enryo* (modesty in the presence of superiors) to explain the easy conformity of the group to American middle-class norms. Kitano further observed that the present trend toward American culture in terms of

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norms, values, and personality signals near complete acculturation of Japanese Americans in the near future. Meredith (10, 11) presents evidence supporting "middle-class leveling" among *Sansei,* especially in the areas of personality traits and sex temperament. In addition to *enryo,* Doi (1) and Meredith (9, 10) have discussed the role of *amae,* or basic dependency, as an important concept for understanding the psychological dimension of social change.

A somewhat divergent view of Japanese-American acculturation has been expressed. Kuroda (7) concludes that *Sansei* are no longer interested in integration with the dominant "white culture." They find pride in their own ethnic culture much like the blacks today. Johnson (4, 5) states that the *Sansei* accept their cultural heritage with pride. However, the point is stressed that the *Sansei*'s acceptance of his ethnicity is not rooted in his past Japanese heritage, but rather in a functioning societal group of today. In other words, *Sansei* have not gained ethnic identity by a "return" to their past but through means of group membership which provides self-esteem and pride.

While it is difficult, if not impossible, to sort out the "historical" from the "contemporary" factors affecting the Japanese-American acculturation process, the area of interpersonal needs is recognized as an important source of information about intracultural communication (3). An interpersonal need is one that may be satisfied only through the attainment of a satisfactory relation with other people. Schutz (15) has postulated that every individual has three interpersonal needs: (*a*) *inclusion* (need to establish and maintain a satisfactory relationship with people with respect to interaction and association), (*b*) *control* (need to establish and maintain a satisfactory relationship with people with respect to control and power), and (*c*) *affection* (need to establish and maintain a satisfactory relationship with others with respect to love and affection).

The purpose of the present study was twofold: first, to compare the interpersonal needs of *Sansei* Japanese-American college students with a Caucasian-American sample; and second, to compare within ethnic groups for the presence of sex role differences (11).

B. Method

The *S*s of the investigation were 154 third-generation (*Sansei*) Japanese Americans (62 males, 92 females), and 84 Caucasian Americans (44 males, 40 females), all undergraduates enrolled in the introductory speech-communication course at the University of Hawaii. The mean age of the

group was 19.2 yrs.; age differences between ethnic groups were not statistically significant.[1]

Operationally, the Fundamental Interpersonal Relations Orientation-Behavior scale [FIRO-B (16)] was designed to assess the behavior the individual expresses toward others, and how he wants others to behave toward him. FIRO-B was administered in small group testing situation. Six scores were derived from the instrument: expressed inclusion behavior, wanted inclusion behavior, expressed control behavior, wanted control behavior, expressed affection behavior, and wanted affection behavior.

C. Results

The means and standard deviations for each subgroup on the six FIRO-B scales are presented in Table 1. Mean scores were analyzed in two directions: ethnic differences and sex differences.

In terms of ethnic group comparisons, the Japanese-American males had a significantly higher wanted control ("I want people to control me")

TABLE 1
Comparison of Japanese-American and Caucasian-American College Students on FIRO-B

Scale	Sex	Ethnic groups: Japanese Americans *M*	Japanese Americans *SD*	Caucasian Americans *M*	Caucasian Americans *SD*	Mean comparisons *t*
Wanted control	Male	4.60	2.58	3.25	2.17	2.91**
	Female	4.98	2.72	3.25	1.86	4.22***
Expressed control	Male	2.71	2.25	3.59	2.90	n.s.
	Female	2.58	2.31	3.07	2.56	n.s.
Wanted inclusion	Male	3.79	3.58	4.00	3.50	n.s.
	Female	4.35	3.37	3.70	3.47	n.s.
Expressed inclusion	Male	4.58	2.27	3.82	2.13	n.s.
	Female	5.45	2.15	4.25	2.34	2.76**
Wanted affection	Male	4.05	2.74	4.57	2.90	n.s.
	Female	4.57	2.17	4.75	2.64	n.s.
Expressed affection	Male	2.92	2.29	3.07	2.31	n.s.
	Female	3.72	2.19	4.35	2.68	n.s.

Note: All sex differences not significant except for Expressed Inclusion scale (Japanese Americans, $t = 2.37$*) and Expressed Affection scale (Japanese Americans, $t = 2.16$*; Caucasian Americans, $t = 2.34$*).

* Significant at .05 level.
** Significant at .01 level.
*** Significant at .001 level.

[1] According to the most recent census, 20.8% of Hawaii's population are Caucasian; 31.8% are of Japanese ancestry.

average than the Caucasian-American males. The Japanese-American females had significantly higher mean scores on wanted control and on expressed inclusion ("I initiate interaction with people") than the Caucasian-American females. Differences between ethnic groups were minimal on expressed control ("I control people"), wanted inclusion ("I want to be included"), wanted affection ("I want people to get close and personal with me"), and expressed affection ("I act close and personal toward people").

With regard to sex differences, the Japanese-American females had a higher mean than the Japanese-American males on expressed inclusion, while both the Japanese-American females and the Caucasian-American females had significantly higher expressed affection than their male counterparts. These sex differences were marginally significant at the .05 level.

D. Discussion

Hansen's hypothesis of third-generation "return" in immigrant groups has interesting implications for Japanese-American acculturation.[2] Despite the sociological forces that operate to "integrate" Japanese Americans (e.g., Milton Gordon's seven assimilation variables),[3] the *Sansei* exhibit areas of psychological differences (17, 18).

The findings of the present study indicate that the Japanese-American males had a greater interpersonal need for wanted control than their Caucasian-American counterparts. The Japanese-American females expressed a greater need for both wanted control and expressed inclusion than the Caucasian-American females. The latter finding directly supports an earlier reported observation that it is difficult to find among *Sansei* females the "classical" stereotype of a retiring and compliant ("Meiji-type") female (11, p. 155).

The major finding dealing with greater wanted control among Japanese Americans supports the observation by the writer of greater restraint over "acting-out" impulses in his group. Possibly two conceptualizations may be proposed to explain this finding. In ambiguous social situations, Kitano argues (6), it is preferable to look to others in authority for cues to action (e.g., *enryo syndrome*). Thus, the interpersonal need for control functions as a manifestation of a social norm among Japanese Americans.

---

[2] In 1938 M. L. Hansen delivered an essay at the Augustana Historical Society, a group dedicated to the study of Swedish immigrants. This essay is sometimes referred to as "Hansen's Law."

[3] Gordon discusses seven assimilation subprocesses: cultural, structural, marital, identificational, attitude receptional, behavior receptional, and civic assimilation. See M. M. Gordon, Assimilation in American Life. New York: Oxford Univ. Press, 1964.

Recently, Okano and Spilka (13) proposed a conceptual linkage between ethnic identity and alienative feelings, and negative self-appraisal attributed to minority status. From this perspective, the interpersonal need for control may be viewed as evidence of incomplete acculturation. Whether higher wanted control in *Sansei* Japanese Americans is symptomatic of a value norm, or a stage in the acculturation process, or both, deserves further inquiry.

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AUTHORITARIANISM AND RACIAL PREJUDICE IN AUSTRALIA: A REPLY TO THOMAS*

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SUMMARY

Neither Thomas nor previous writers produce adequate evidence to support the claim that Australian culture is in general more authoritarian than North American culture. The claim that the State of Queensland is an especially authoritarian region of Australia is similarly faulty. Both claims ignore public evidence contradicting them. Previous research has shown that the Conservatism scale used by Thomas is questionable as a measure of authoritarianism. Thomas' sample of 56 Brisbane mothers also does not permit the generalizations he wishes to make. His study must then be discounted.

Thomas (9) rightly attacks flaws in previous research into the relationship between authoritarianism and racial prejudice. His main interest is whether any work done with the F scale can be said to be valid and whether any relationship that does exist might be culture-specific. Specifically, he examines whether the relationship between social distance measures and the Wilson and Patterson (11) Conservatism scale might not be low among members of the supposedly authoritarian culture in the State of Queensland, Australia.

While one can hardly disagree with his criticisms of the F scale's validity (3), his further assertion that the Conservatism scale is a better measure of authoritarianism and that the State of Queensland has an authoritarian culture are both highly questionable.

To take the latter assertion first: The implied claim of similarity between Australian society and South African society is fanciful. If having 1% *versus* 75% of your population colored does not make any difference to race-relations, it is hard to imagine what would. Race is a very minor

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consideration in Australian political life and social organization. It is even less of a consideration than it is in the United States—let alone South Africa. Additionally, as Berry (2) rightly says, the pervasive cultural myth and dominant cultural value in Australia is egalitarianism—not authoritarianism (1, 10). Australians almost universally believe themselves to be the most egalitarian nation on earth (as is in fact evidenced by the generally small percentage variations in individual incomes) and are intensely proud of it. Numerous tales of irreverence for authority in Australia's armed forces during both world wars are proudly recounted as evidence of a characteristic difference between Australian culture and the older cultures of Europe. Attempts to show that Australians are still somehow deep down authoritarian (2) have not been successful (4). Certainly, to the extent that they do periodically elect socialist governments, Australians are at least less conservative than either South Africans or Americans.

It is true, however, that within Australia itself it is a popular journalistic stereotype to regard Queenslanders as particularly authoritarian. This view seems to have been formed by the present Queensland government's treatment of anti-Apartheid demonstrators and the same government's censorship of allegedly "pornographic" materials. Latterly, allegedly unfair aspects of Queensland's Aboriginal welfare legislation have also come under public fire. Thomas (9) also mentions informal discrimination against Aborigines in some Queensland rural towns.

All stereotypes, however, must be critically examined, and to judge Queensland's degree of illiberality or authoritarianism solely on the grounds so far mentioned is extremely one-sided. The other side of the picture is that Queensland was for many years ruled by Australia's major Leftist party (the A.L.P.) and the present "conservative" government gained power only after a disastrous split in the State A.L.P. There were numerous notable socialist innovations in those earlier days—some of which (such as the abolition of the State Upper House of Parliament, free hospital medical care for all, and State-sponsored gambling in the form of the "Golden Casket" lottery) survive to this day and have still not been fully emulated by other Australian States. Although they are much maligned, it is also true that the Queensland police force differs from other Australian forces in remaining unarmed.

Even the present Queensland "conservative" government has an impressive record of liberal reforms. The first person of Aboriginal race to sit in any Australian house of parliament (Senator Bonner) was initially a

nominee of the Queensland government. The same government has also given a lead in antisexist legislation and Sunday drinking in its hotels—both things in which it has still not been emulated by the major States. Queensland was also ahead of the major States in enacting an enlightened penal code—including such innovations as weekend jail sentences for selected criminals.

Even in the things for which it is criticized, Queensland is far from unique. Informal discrimination against Aborigines in rural towns has been as much a subject of Leftist and journalistic protest in New South Wales (Australia's most populous State) as it has in Queensland—if not more so. Harsh attitudes towards Leftist street demonstrators are also not unique. "Run over the bastards" as a now-famous response to demonstrators lying down in front of his official car was an utterance not of the Queensland but of the New South Wales Premier. It should also be noted that the present Queensland Aboriginal welfare legislation which some Leftists object to as paternalistic was in fact drawn up with the active consultation and cooperation of Aboriginal community leaders.

At the very least, then, the claim by Thomas (9) that Queensland represents an authoritarian culture must be seen as a highly tendentious one. There may be ways in which Queensland is more authoritarian than Northern United States culture but there are also surely ways in which it is less so. Any overall difference would be hard to establish.

Thomas' further claim that the Conservatism scale by Wilson and Patterson (11) is an adequate measure of authoritarianism is equally tendentious. This common but unneccessarily loose confounding of the concepts of authoritarianism and conservatism has been under attack at least since the work of Shils (8). The two may in fact be empirically related but to say that a measure of the one is also a measure of the other is surely more representative of political rhetoric than of the care one should be able to expect in social science. Ray (5) even documents findings that, among Australian army conscripts, conservatism correlates positively with racial prejudice ($r = .30$), while authoritarianism correlates negatively ($r = -.32$). Authoritarians were more tolerant than nonauthoritarians. Not only does this finding show that authoritarianism and conservatism may differ in crucial ways, but it also should have been discussed for its possible relevance to Thomas' central theoretical concern—the correlation of authoritarianism and racial prejudice in an authoritarian culture. There is little doubt that the Army represents an authoritarian culture.

Even on methodological grounds, the Wilson and Patterson scale must

be questioned as an adequate measure of authoritarianism. The many methodological problems with this scale have been summarized elsewhere (7) so will not be detailed here. Suffice it to say that on some occasions (6) the C-scale has been found to show positive rather than negative correlations between its supposedly negative and positive halves. This is strongly reminiscent of the attempts to balance the F scale—the scale Thomas (9) wants to use the C-scale to replace. Thomas would at least need to examine and report whether the C-scale was so characterized in his administration of it.

Finally, if it is not too much like beating a dead horse, one must ask how representative Thomas' sample was. We do not even have any assurance that Thomas' 56 Brisbane mothers were representative of Brisbane mothers, let alone of any larger population.

In conclusion, then, it must be said that Thomas' attempt to advance our understanding of the correlation between authoritarianism and racial attitudes was not successful.

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AUTHORITARIANISM IN QUEENSLAND: A REPLY TO RAY*

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SUMMARY

Ray's criticisms of a previous paper by the author are examined and refuted. Reference is made to published evidence which supports the contention that Queensland has a relatively authoritarian culture compared with liberal Northen United States communities, and that racial issues are a salient factor in some aspects of Australian life. Examination of Ray's argument concerning the alleged low validity of the Conservatism scale shows they are not supported by the evidence he refers to, and that he has misrepresented previous studies conducted by himself.

Ray (9) has presented a critique of a paper by the present author (10), which examined the relationship between authoritarianism and ethnocentrism in Queensland, Australia. He takes issue with the claim that Queenslanders are relatively authoritarian and that the Wilson and Patterson Conservatism scale is an adequate measure of authoritarianism.

In the original paper by the present author (10), it was claimed that Queensland has a "relatively authoritarian" culture which may be regarded as being between the liberal Northern United States communities and the highly authoritarian Afrikaner culture of South Africa (p. 181). In reply, Ray argues that (*a*) Australians are at least less conservative than either South Africans or Americans, and (*b*) there may be ways in which Queensland is more authoritarian than Northern United States culture, but there are also surely ways in which it is less so, and any overall difference would be hard to establish.

Although it was not specifically claimed that Queenslanders were more authoritarian than Australians from other states, as Ray suggests, a survey conducted by Anderson and Western (1) has shown this to be so. In

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addition, an international study of teacher roles has reported that Australian teachers are generally more authoritarian than those from New Zealand, U.K., and U.S.A. (1). Ray goes on to mention "liberal" reforms instituted by the "conservative" Queensland government. However, while such information is interesting, and could be countered by an equally impressive list of "authoritarian" actions by the Queensland government and its agents (e.g., 2), such information is not directly relevant to the points at issue as it does not lead to accurate measurement of differences in mean levels of authoritarianism between Queenslanders and people in other communities. Consequently, in view of the evidence referred to from other studies, and the lack of specific empirical data to support Ray's position, his claims must be regarded as part of the Australian "myth" he refers to, until evidence is produced which suggests otherwise. Also, the candidates who included a "white Australian" policy as a major part of their election campaign in the Australian Federal election of 1972 (4), the Nazi party in Queensland (12), and the Aborigines currently suffering from random police brutality (3) might not agree with his claim that "race is a very minor consideration in Australia's political life and social organization."

The second type of criticism Ray made concerns the adequacy of the Conservatism scale and he attacks the ". . . unnecessarily loose confounding of the concepts of authoritarianism and conservatism." However, he does not mention the correlation of .84 between the Conservatism scale and an interview measure of authoritarian child-rearing practices referred to in the original study, using the same sample of 56 mothers (11). It is difficult to see how a correlation of this size, which approaches the reliability levels of most scales, could represent "unnecessarily loose confounding"! In addition, Ray refers to a study he conducted, in which "authoritarianism" correlated negatively ($r = -.32$) with a five-item ethnocentrism scale among 96 Australian Army conscripts. However, he did not use an "authoritarianism" scale as he reported, but an "attitude to authority" scale (constructed by Ray) which is completely different in item content from both the California F scale and the Conservatism scale (6, Appendix C). As three of the five items in the ethnocentrism scale were reverse-scored (and 14 out of 28 in the "attitude to authority" scale), the 10 percent covariance, corresponding to a correlation of $-.32$, may represent reliability due to extremely high acquiescent responding, which Ray has previously reported in a sample of this type (5). So this finding can hardly be said to "show that authoritarianism and conservatism may differ in crucial ways" (9, p.).

Ray then refers to his previous review of "methodological problems" in the Wilson and Patterson Conservatism scale (8), to which Wilson has replied (13). However, Ray misrepresents his own evidence, as his comment that "on some occasions the C-scale has been found to show positive rather than negative correlations between its supposedly positive and negative halves" refers to a *single* correlation of .288 he reported from a student sample (7). Curiously, he does not mention the equivalent correlation for the army sample reported in that study. As Wilson comments (13), no other researcher has ever reported a positive correlation between the positive and negative halves of the Conservatism scale, whereas many researchers have consistently found high negative correlations (a correlation of $-.57$ was found in the author's study). A single negative instance can hardly be taken as proof of the Conservatism scale's inadequacy.

Finally, Ray questions the representativeness of the sample of 56 mothers reported in the author's study. While it was not claimed that the sample was truly "representative" of the population of Brisbane mothers, the extremely high variance on the Conservatism scale ($SD = 19.55$), which is higher than that reported in any other study, shows that there was a wide range of individual differences in the study. As was mentioned previously (10), representativeness is less important than a wide range of individual differences in correlational studies. In contrast, Ray's attempt to claim that a sample of 20-year-old army recruits was "ideal for social research" (5) was not supported by his own evidence, as the sample showed the *least* variation reported for a sample of this size on the Conservatism scale ($SD = 5.17$).

Having given these data, I will leave it up to the reader to judge whether Ray's attempt, to demonstrate that "Thomas' attempt to advance our understanding of the correlation between authoritarianism and racial attitudes was unsuccessful", was successful.

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PREJUDICE TOWARDS ISRAELIS OF ORIENTAL ORIGIN AMONG ISRAELIS OF WESTERN ORIGIN*

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SUMMARY

Forty males and 40 females, Israelis of Western ethnic origin, 18-30 years of age, nonreligious, having at least a high school education, were asked to evaluate the personal characteristics of young males and females after viewing their photographs (portraits). The photographs had been judged beforehand for ethnic origin (Western or Oriental) by a group of judges having characteristics similar to those of the *S*s.

It was found that (*a*) all *S*s evaluated the "Western" photographs in a significantly more positive way than the "Oriental" ones; (*b*) all *S*s evaluated the female photographs in a significantly more positive way than male photographs; (*c*) female *S*s' evaluations of all the photographs were significantly more positive than the male *S*s' evaluations; (*d*) there was a significant interaction between the sex and ethnic origin of the evaluee, so that while there was no difference between photographs of males and females when judged to be of Western origin, the photographs of Oriental females were evaluated more positively than Oriental males.

A. INTRODUCTION

Prejudice may be defined as a deviation from the norm of rationality which requires a continuous attempt to collect accurate information, to correct misinformation, and to be logical in deductions and cautious in inference. Deviation from this norm results in various types of behavior, such as hasty judgment, overgeneralization, thinking in stereotypes, refusal to change an opinion even when confronted with new evidence, and refusal to admit the existence of individual differences (10).

The present study is an attempt to measure indirectly the deviation from

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the rationality norm. The face validity of the indirect measures has eloquently been argued for by Campbell (5). Such measures have been used in the past (14) and recently (4, 7, 11).

The present study assumes that ethnic origin is an important criterion for evaluating people in Israel. According to Peres (15) only 39% of high school students (ages 16-17) of Western origin expressed an unconditional willingness to marry a person of Oriental ethnic origin, while 63% expressed a willingness to have them as neighbors. Fifty-seven percent of the adults of Western origin, however, were willing to marry Oriental persons unconditionally, and 67% were willing to rent them a room.

The significant difference between Western high school students and adults who are willing to marry persons of Oriental ethnic origin may be explained by the fact that adults are more sensitive to social desirability than high school students, who are not afraid to express their preferences openly. If that is the case, then Peres' findings justify the use of indirect ways to measure prejudice among adults, so that one may obtain a more valid result than would be available by the direct approach.

Additional data by Peres show that among Western high school students there is a smaller distance between the "ideal self" and the "typical Western" than between the "ideal self" and the "typical Oriental." This distance is calculated by summing-up of the different ratings of traits in semantic differentials. He also found that Western high school students rated the traits of the "typical Western" higher than the traits of the "typical Oriental."

Rim and Aloni (20) found that Western students rated the "typical Western" more positively than the "typical Oriental." They do not report the characteristics of their *S*s except for stating that there were *S*s of both sexes. They also found that both men and women rated the typical male more positively than the typical female regardless of the ethnic origin of the evaluee.

In all these studies conducted in Israel the direct method of measurement was applied: i.e., the *S*s were asked to evaluate persons of Western or Oriental ethnic origin. In only one experiment (19) was there an attempt to study the development of national attitudes by children through the use of the indirect method. Portraits of young men, some Western and some Oriental, were presented to children in grades 2 to 6, and they were asked to report how much they like each of the persons in the photograph. They were also to tell whether the person in the photograph was an Israeli or not. The results show that (*a*) the children tended to identify Western

portraits as Israelis more so than portraits of Oriental persons; (*b*) the children liked the portraits of persons of Western origin more than those of persons of Oriental origin.

Neither Peres nor Rim and Aloni report any attempt to examine whether prejudice was more prevalent among women than among men. According to reports in the literature, it is reasonable to assume that women are more prejudiced than men for the following reasons:

1. From a large number of studies (2, 3, 6, 8) conducted in the U.S., it is clear that women conform more than men.

2. A number of studies found a positive relationship between conformity and prejudice (9, 13, 16, 17, 18, 23, 24). They all reach the conclusion that a person's ethnic attitudes are similar to those attitudes that he perceives to characterize his reference group. On the basis of these facts and the findings of Peres (15), Rim (19), and Rim and Aloni (20), the following hypotheses were made:

1. Women of Western origin will evaluate persons of Oriental origin more negatively than will men of Western origin.

2. Persons of Western origin will be more positively evaluated than persons of Oriental origin.

3. Males (both Western and Oriental) will be more positively evaluated than females (both Western and Oriental).

B. Method

1. *Subjects*

Forty males and 40 females between the ages 18 to 30 (who were of Western ethnic origin) with a high school or higher education, describing themselves as nonreligious, were selected at random on the university campus and at Lod airport.

2. *Selection of Photographs*

The photographs were taken on the university campus. All portraits were of students, both male and female, who were willing to be photographed without knowing what the purpose of the study was. The photographer talked briefly to each of the candidates in order to put them at ease and get a more relaxed and normal facial expression. All pictures were taken at the same spot, with the same lighting conditions, and with a neutral background. The photographs were only of the head and showing a minimal amount of clothing. An attempt was made to include persons with

regular features without any exceptional traits that might arouse excessive attraction or rejection.

These 30 photographs were presented to 25 judges, all of them students between the ages 20 to 30, who were asked to determine for each picture, (*a*) the ethnic origin of the person (Western or Oriental), and (*b*) how confident was he in his judgment with the use of a five-point scale.

Eight photographs which had high interjudge consensus and high confidence ratings were selected for presentation to the *Ss*. The pictures consisted of four Western and four Oriental persons, with two males and two females in each group.

3. *Procedure*

The *Ss* were asked to participate in what was presented to them as a "Research of Comparative Judgment" with the aim to investigate the extent to which one can infer character dispositions of people by simply looking at their photographs. They were told that the persons whose portraits would be presented to them had already been judged by professional psychologists and psychiatrists after having been given various personality tests. The purpose of the present examination was to compare the *Ss*' opinions with those of the professionals.

Each of the eight photographs, presented to the *Ss* in a random order, was attached to a page consisting of rating scales of 10 pairs of traits as follows: Intelligent-unintelligent, honest-dishonest, cheerful-depressed, kind-cruel, stable-unstable, industrious-lazy, balanced-impulsive, sociable-unsociable, pleasant-unpleasant, good-bad.

The *Ss* were asked to mark on a seven-point scale, from 3 through 0 to −3, how he would evaluate the strength of each trait in the person photographed in a given picture.

After finishing this part the *Ss* filled out a brief questionnaire reporting their sex, age, country of origin of self and parents, and how religious he considered himself to be.

C. Results

1. *Success of Experimental Manipulation*

The cover story of the research, telling the *Ss* about analyzing characteristics by means of photographs, was perceived as highly credible. None of the *Ss* discovered the real purpose of the experiment. Some of them actually wrote their names on the questionnaires (though this was not

required) so that they could be sent a copy of the results to see how successful was their performance.

2. *Analysis of the Ratings*

Since the rating-scales could be scored from +3 to −3, each photograph could get a total of +30 to −30 for the 10 traits. These scores were calculated for each portrait and for each *S* separately, so that each *S* had four scores. In each case they were calculated as an arithmetic mean of the ratings the *S* gave to the two photographs in each set: (*a*) Western male photograph, (*b*) Oriental male photograph, (*c*) Western female photograph, (*d*) Oriental female photograph.

TABLE 1
MEAN TOTAL RATINGS OF TRAITS ATTRIBUTED TO PHOTOGRAPHS ACCORDING TO SEX OF EVALUATOR AND ETHNIC ORIGIN AND SEX OF EVALUEE

	Evaluee			
	Western origin		Oriental origin	
Evaluator	Male	Female	Male	Female
Male	15.95	12.84	−.39	6.89
Female	18.06	17.40	−.15	8.75

Note: The higher the score the more positive is the evaluation.

Table 1 shows the means of these mean scores for the 40 male and 40 female *S*s (evaluators) separately. A three-way analysis was performed on the ratings with two factors, the origin and sex of the evaluees, serving as repeated measurements (25, pp. 319-337). The results of this analysis are the following: Females rated all the photographs more positively than males (mean females' ratings = 11.09; mean males' ratings = 8.82; F = 5.7; df = 1, 78; $p < .025$). All *S*s rated Western photographs more positively than Oriental photographs (mean rating of Western photographs = 16.1; mean rating of Oriental photographs = 3.9; $F = 232.4$; $df = 1, 78$; $p < .001$). All *S*s rated females' photographs more positively than males' photographs (mean ratings of females' photographs = 11.5; mean ratings of males' photographs = 8.5; $F = 17.0$; $df = 1, 78$; $p < .001$). There was an interaction between the origin and sex of the evaluee, so that for Western photographs there was no difference in rating between males and females, while for Oriental photographs the females were rated higher than the males ($F = 55.2$; $df = 1, 78$; $p < .001$). No interaction was found between the sex of the evaluator and the origin and sex of the evaluee, nor was there any interaction between these three variables.

D. Discussion

From conversations with the *S*s after they finished their task it appeared that it is plausible to argue that the ratings of the photographed persons indeed reflect the *S*s' ethnic attitudes. When the real purpose of the research was revealed to them, many of them emphatically stated that they do not discriminate between persons of different ethnic origin. However, when asked to summarize their own ratings of the pictures, many of them "broke down" and admitted that the results really represent their attitudes and added that they were unaware of being so extreme. A few of the *S*s said that some of the differences in their ratings were due to the photographs themselves, some of which aroused more sympathy than others. Such claims, however, may be a rationalization to explain self-behavior which the *S* does not approve and which embarrasses him.

If the claim that the indirect measurement of prejudice applied in the present study is valid, then one may see in some of the results a replication of what had been found in previous studies conducted in Israel, in which direct measures were used to study ethnic attitudes. In the present study it was also found, just as in previous studies (15, 19, 20), that Westerners rate Orientals much less positively than they rate Westerners.

The finding that all *S*s rated female photographs more positively than male photographs is incompatible with the results of Rim and Aloni (20). In their report the typical male was more positively rated than the typical female. This tendency was found only with female *S*s, though males came very close to statistical significance in this respect. The reasons for this difference may stem from a number of differences between the two studies:

(*a*) In the Rim and Aloni study the *S*s had to rate 30 traits of the typical characters as against only 10 traits in the present study. Of the 10 traits only six were included in Rim and Aloni's thirty traits. Very possibly, the traits listed by them include many traits considered masculine, such as rational, decisive, solve problems by physical force, courageous, utilitarian, etc., which might cause the *S*s to rate the typical man higher than the typical woman. The present study did not include such traits; rather the emphasis was on traits that would encourage higher ratings for women (e.g., kind, pleasant, cheerful, good, etc.). On the other hand, the different combinations of the various traits appearing in these two studies did not eliminate the effect of ethnic origin on the ratings. The reason may be that the ethnic stereotype is more deeply rooted among the *S*s than the sex stereotype and is clearly recognized in the ratings of all the *S*s in any combination of traits. However, this interpretation needs verification.

(*b*) Rim and Aloni do not specify the characteristics of their *S*s in terms of age, ethnic origin, education, religiosity. The inconsistent results may reflect sampling differences.

The hypothesis that Western females would show a higher degree of prejudice than Western males was not confirmed. No interaction was found between the sex of the evaluator and the ethnic origin of the evaluee. However, it is clear that female *S*s rated all photographs more positively than male *S*s. It is difficult to tell whether or not this reflects a basic difference in the evaluation process of males and females while rating traits by looking at photographed persons. Most studies on stereotypes are not concerned with the sex variable, or they report that there is no sex difference in evaluating traits of ethnic groups, whether positive, negative, or neutral (*cf.* 22). Nor is there any reference to the sex variable in the studies of impression formation. Anderson (1) found that in forming impressions females' reactions were more extreme than males', both negatively and positively; however, he tends to relate these sex differences to semantic habits connected to the use of reaction scales and not to differences in the process of impression formation.

The interaction found between the ethnic origin and sex of the evaluee, resulting in higher ratings for Oriental females than for Oriental males, suggests that prejudice by Westerners towards Orientals is directed against males more than against females. Apparently, the negative characteristics attributed to Orientals, like violence, laziness, etc., fit the males more than the females.

In general, the findings of the present study seem to support those of Sigall and Page (21). They argue that the data reported by investigators showing more positive attitudes toward Jews and Negroes among American students (12), compared to the attitudes of students 40 years ago, reflect only a social convention or a manner of speech, and not a real attitude change. This claim was based on the results of an experiment they conducted. The Israeli findings also demonstrate that direct measures of prejudice might be misleading, and that a positive change in prejudice detected by a direct measure should be correlated with a similar change obtained by the use of an indirect measure.

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EFFECTS OF SEATING ARRANGEMENT ON GROUP PARTICIPATION*[1]

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SUMMARY

The relationship between position in a seating arrangement and group participation was examined in a field setting with use of 198 men and women (college students and adults in the community). A simple central-position hypothesis was compared to one that included both centrality and high visible accessibility by observing groups of three members interact in two different seating arrangements (i.e., either in a booth or around a table). The results indicated that centrality was associated with initiating communications, while high visibility appeared related to receiving communications. Thus, the central-position hypothesis predicted accurately who initiated most communications. The central-position-plus-high-visibility hypothesis, however, appeared superior in predicting who was likely to dominate the overall group interaction.

A. INTRODUCTION

Past research has shown that a person's position within a seating arrangement will affect the extent of his participation during a group discussion (4, 6, 9, 11).[2] Thus, certain seating positions within a particular arrangement have been found either to increase or decrease the likelihood that the occupant will dominate and, therefore, direct group interaction. The present study examined two explanations for these effects by observing three-person groups found gathered in nonlaboratory settings.

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[1] The authors would like to thank Alan Carsrud and Stephan Snodgrass for their constructive comments on an earlier version of this paper. Reprint requests should be sent to the first author.

[2] It should be noted that these studies were performed with American students only. Consequently, as Hall (3) has pointed out, their results might be culturally limited.

Harris (5) proposed one of the explanations when he stated that "To arrange (the participants) in a semi-circle . . . is psychologically bad. The end candidates of the semi-circle are isolated, the central candidate is spotlighted . . ." (5, p. 75). This explanation, then, proposes a simple central-position hypothesis which would predict that sitting in P_1 in both seating arrangements A and B shown in Figure 1 would result in the occupant initiating and receiving more communications—and, therefore, dominating the discussion to a greater extent—than those sitting in either P_2 or P_3.

Hare and Bales (4) present an alternative—though not necessarily mutually exclusive—explanation derived from Steinzor (9) in stating that centrality will only result in a person dominating the social interaction if his seating position also gives him greater visible accessibility. This would occur when the person's seating position places him opposite to others in the group. This central-position-plus-opposite hypothesis suggests that the person in P_1 would participate more in group interaction than those in P_2 or P_3 only in seating arrangement B (see Figure 1).

The central-position-plus-opposite hypothesis has received some support (4, 6, 11). However, the evidence has not been necessarily contradictory to the simple central-position hypothesis, since the appropriate comparison groups were not always included (4, 6). Furthermore, past research has

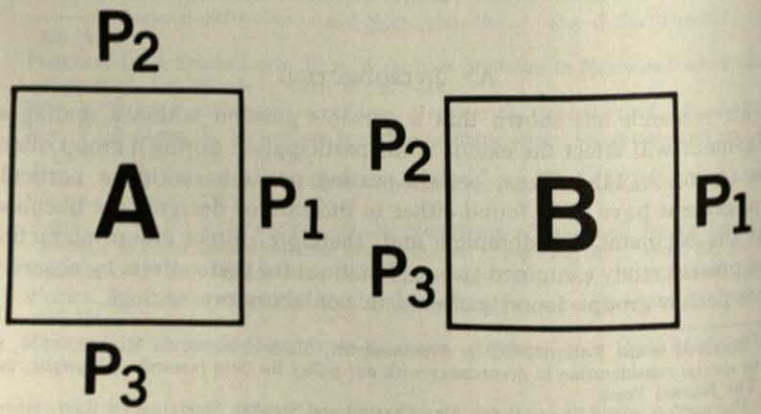

FIGURE 1

SEATING ARRANGEMENTS

A. high centrality arrangement; B. high centrality and high visibility arrangement.

examined groups which were composed of more than three members. As Bass and Klubeck (1) note, group size could interact with the seating arrangement to eliminate the impact of mere centrality. Also, the previous studies have focused upon task-oriented groups, where sitting opposite others apparently has greater value than in groups whose members are simply socializing (8).

Therefore, the present study, in an attempt to give a more comprehensive test of the two explanations, examined three-person groups which were found gathered in what are considered to be typically social settings. Both of the seating arrangements shown in Figure 1 were included.

B. Method

1. *Subjects*

Students from the State University of New York at Brockport and the generally older local townspeople served as the 198 male and female *S*s.

2. *Procedure*

Three-person groups were observed in varied places on the local campus and in the town. These places included snackbars, dining halls, restaurants, and entertainment lounges. Both seating patterns found in Figure 1 are represented by three persons sitting around an open table and in a booth respectively. Thus, the seating arrangement of the group was determined by whether or not the members were sitting at either a table or a booth. The person who sat in the central position in either seating arrangement was always designated as P_1. The person who sat to the right of P_1 was always P_2 and the person who sat to the left of P_1 was always P_3.

Observers sat in inconspicuous places that still allowed a clear view of the interaction patterns among the participants. Coding of the group interaction consisted of recording which participant initiated conversation and to whom it was directed. The observer determined such communicative acts by eye contact and movements of the lips, head, and body. When a communication did not appear to be directed to any one particular member, it was scored as "group." In addition to the seating arrangement and the seating position of each participant, the observer also recorded the sex of the participants and the duration of the group. The observation of the group was discontinued if one of the participants departed or another joined them.

Training of the observers was accomplished in one session. An explanation of the recording procedures was given, and sample trials were run until general consensus appeared among the observers in scoring the interaction.[3]

C. Results

The number of communications that each participant initiated and received were subjected to separate $2 \times 3 \times 3$ analyses of variances with unweighted means. The first factor consisted of whether or not the seating arrangement was either a booth or a table. The second factor was the three seating positions. Finally, the third factor was the sex composition of the group. Because groups of three females were relatively infrequent, triads of the same sex type—either all male or all female—were placed together under one condition. The other two levels of this factor were groups composed of either two males and one female or one male and two females.

Since both the booth and table arrangement spotlight the P_1 position, the simple central-position hypothesis would be supported if only a main effect were found for initiated and received communications. However, the central-position-plus-opposite hypothesis would require an interaction between seating arrangement and seating position for support because P_1 is both central and opposite only in the booth arrangement.

In support of the simple central-position hypothesis, only a main effect for seating position was significant for initiated communications ($F = 14.52$; $df = 2/180$; $p < .001$). Further analysis by use of the Duncan's Multiple Range test revealed that more communications were initiated by the occupants of the P_1 position than of the P_2 and P_3 positions ($p < .01$). The means were 9.24, 7.20, and 6.09, respectively. However, the analysis of variance for the number of communications received did not reveal any significant effects. Thus, the simple central-position hypothesis was supported, but only partially, since a main effect for seating position was found for initiated but not received communications.

Consequently, correlations between initiated and received communications were performed to explore further the relationship to seating arrangement. Since the duration of the groups varied considerably, however, the variance due to the amount of time that the groups were observed was

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[3] To decrease the likelihood of detection by the participants, the interaction of each group was coded by only one of the three observers. Consequently, intercoder reliabilities are not available. However, a preliminary inspection of the results showed similar trends across the observers.

taken out of both initiated and received communications. For the groups sitting around a table, the partial correlation between initiated and received communications was not significant ($r = .175$; $p > .05$). In contrast, the partial correlation for groups sitting in a booth was highly significant ($r = .602$; $p < .001$). Thus, high rates of initiating communications were associated with high rates of receiving communications only in the booth arrangement. The correlations—in contrast to the analyses of variance—tend to support the central-position-plus-opposite hypothesis, since they suggest that the high rate of initiating communications found for the P_1 position was related to a high rate of receiving communications only when both centrality and high visibility existed. An examination of the means for received communications is consistent. The average number of communications directed to the occupant of the P_1 position was greater than to the other two positions only in the booth arrangement.

Finally, research has suggested that there is some relationship between a person's characteristic level of assertiveness and the selection of a seating position (4, 11). Since the present study was performed in a field setting, partially in an attempt to be unobtrusive and nonreactive (13), this bias could not be eliminated by randomly seating the participants. However, males have been found to be more assertive than females, both characteristically (2, 7, 12) and in the presence of opposite sex persons (10). Thus, in an attempt to investigate the possibility that the most dominant person in the group was selecting the most central position and, therefore, determining its impact on participation, both the seating pattern in the mixed sex groups and the sex of the participants were examined.

If more assertive people select the more central position, then in groups composed of both sexes males should tend to sit in the P_1 position. The results, however, revealed that the central position was occupied disproportionately by a member of the more frequently occurring sex type in the group (33 out of the 38 groups; $p < .05$). Thus, in the groups of two females and one male, a female rather than a male tended to sit in the P_1 position more than would be expected by chance. Furthermore, in three of the five groups in which this pattern did not occur, a female sat in the central position even though two males were the other members of the group. These results indicate that for some of the groups factors other than personal assertiveness were determining the selection of a seat.

Further examination of effects of assertiveness was done by reanalyzing the number of communications initiated and received after dropping all groups composed of only one sex type and substituting the sex of the

participant for the sex composition of the group. For initiated communications, a marginally significant effect was found for the sex of the participant ($F = 3.03$; $df = 1/102$; $p < .08$). Males initiated more communications ($\bar{X} = 8.27$) than females ($\bar{X} = 6.71$). This tends to support the belief that males characteristically would be more assertive than females. Yet, the only other significant finding was a main effect for seating position for the number of communications initiated ($F = 7.814$; $df = 2/102$; $p < .001$). Thus, females when sitting in a central position, were initiating more conversation than males in the group who were sitting in noncentral positions. Consequently, even in the conditions where characteristic assertiveness was least likely to influence the choosing of a seat, the P_1 position still was associated with higher rates of initiated communications than either of the noncentral positions. Given these results, the hypothesis that the occupant's assertiveness determined the effect of the seating position on group participation does not appear to be supported.[4]

D. Discussion

Both the simple central-position hypothesis and the central-position-plus-opposite hypothesis appear supported by the present study. The results, however, become clear when interpreted as indicating that the central position was related to initiating communications while high visible accessibility (or sitting opposite others) was related to receiving communications. Both centrality and high visibility, then, appear to have contributed differently to the way in which a member was involved in group participation.

These results further suggest that dominating group interaction and, therefore, being selected as the group leader (6) would only occur where both centrality and high visible accessibility exist. These findings are both consistent and complementary with Hare and Bales (4) who found that a central-position-plus-opposite hypothesis was a better predictor of who was likely to emerge as a group leader than was a single opposite hypothesis. This present study, then, by clarifying the role of both centrality and visibility, can be interpreted as supporting the central-position-plus-opposite hypothesis more than the simple central-position hypothesis in

[4] The evidence for the relationship between assertiveness and the selection of a seating position does not appear very strong anyway. For instance, Hare and Bales (4) found only a low correlation ($r = .30$) between a measure of assertiveness and the choosing of a central seating position. Furthermore, the results of Strodtbeck and Hook (11), which first indicated this relationship, were not significant ($p < .15$) at the traditionally accepted level.

respect to the likelihood that a person will emerge as a dominant figure in the group.

The relationship between high visibility and the receiving of communications is understandable in that it is easier to talk to the person who is sitting opposite to oneself than to most others. The association between centrality and initiating communications, however, appears to be open to several explanations. For instance, the central position might be associated with social demands for expectations to converse much like the effect a spotlight has on performance in the theater. It is even possible that the role of the P_1 position is different for the two seating arrangements. The central position in the booth arrangement might result in the occupant's initiating more conversation by being placed into the direct flow of communication through eye contact. In the table arrangement, however, the occupant of the P_1 position does not have direct eye contact with the other members and, therefore, must initiate more conversation if he is to participate equally in the group interaction. This should be more true in social rather than task-oriented groups, since conversation or personal involvement is the usual goal. This explanation, then, would argue that a configurally central position can be a socially isolated one. Finally, although the present results tend to disconfirm that the assertiveness of the occupant determined the effect of the central position on participation, without randomized seating, this possibility cannot be totally ignored. Yet, even if this possibility is true, the present results clearly suggest that an assertive person will not dominate group interaction unless seated in a position that has high visible accessibility. Only future research, however, can clarify fully the relationship between centrality and initiating communications.

In summary, the present study examined the effects of both centrality and high visible accessibility on the relationship between seating position and group participation. The results indicated that centrality was related to high rates of initiating communications while visibility appeared related to receiving communications.

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VIOLATION OF PERSONAL SPACE AS A FUNCTION OF SEX*

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SUMMARY

Experimental conditions afforded 215 *S*s the option of violation or nonviolation of personal space. Two elevator floor selection panels were available to the *S*s, who were the regular occupants of a large downtown office building. In Experiment 1, either a male or a female confederate (*C*) positioned himself by one of the available panels. The results indicated an overall significant avoidance of personal space violation when possible. If the panel space was occupied by a male, both male and female *S*s significantly avoided personal space violations. However, female *S*s were less prone to avoid spatial violation of a female *C*. In Experiment 2, both panels were occupied at the same time. A male *C* occupied one panel and a female *C* occupied the other panel, thereby forcing the *S*s to violate personal space. When violation of a *C*'s space was unavoidable, male *S*s chose to violate female space, while female *S*s showed no significant preference.

A. INTRODUCTION

Considerable research has been concerned with the variable of personal space. Sommer (4) has defined personal space as the area surrounding one's body into which others may not intrude. A comprehensive review of the personal space literature was presented by Sommer (4), and more recently by Evans and Howard (2) and Pedersen and Shears (3). Most of the studies examined developmental factors, utilization of personal space, and reaction when one's own personal space was violated. Few studies have dealt with

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the problem of having *S*s violate the personal space of others. An exception to this was the study conducted by Barefoot, Hoople, and McClay (1). Their study measured violation of the personal space of male and female *C*s, each being placed at differing distances from a drinking fountain. They found that the close proximity of a *C* significantly reduced the number of drinkers only when the *C* was female. These results were based upon a sample of male *S*s. The number of female *S*s was too small to perform an analysis.

In the present study, the procedure of Barefoot *et al.* with regard to violation of the *C*'s personal space by the *S* was applied when an *S* was temporarily confined within an elevator and had to make a floor selection in order to arrive at his desired destination. A *C*, either a female or a male, was positioned 12 inches from one of two available floor selection panels in an elevator. By noting the sex of the individual *S*s, the present study attempted to detect differential violation of the space of the male *C* by male and female *S*s and differential violation of the space of the female *C* by male and female *S*s.

B. Experiment 1

1. *Method*

a. Subjects. *S*s for this study consisted of 122 male and female occupants of elevators in a large downtown office building.

b. Procedures. Two experimental conditions were created. In condition one, a male *C* positioned himself 12 inches from one of two available floor selection panels in an elevator, and in condition two, a female *C* positioned herself in a like manner. Throughout the conditions the *C*s wore the same clothes, their dress being consistent with the previously observed norms of the *S* population. To help avoid the possibility that the *C*s would become familiar to the building occupants, *S*s were observed from 9 a.m. to 11 a.m. on two noncontiguous week days. Six elevators in the 30-story Commerce Towers Building, Kansas City, Missouri, were used in both conditions. The building tenants included a variety of professional and commercial businesses, and the *S*s were either employees, customers, or visitors of these businesses. The observer attempted, on any one day, to eliminate from consideration any elevator passenger who had previously served as an *S* that day. The elevators measured four feet by seven feet and contained two floor selection panels located on either side and immediately adjacent to the door. *S*s were limited to those who pused a floor selection button, and data collection ceased when the elevator occupancy exceeded a total of

seven people. Further, data collection ceased when the panel not occupied by the *C* became occupied by an individual other than the *C*. An observer, who positioned himself in the center of the rear of the elevator, recorded the sex of the *S*s and the panel used by the *S*s. To record data in an unobtrusive manner, blank index cards taped to the crossword puzzle section of a local newspaper were used. All *S*s who used the panel immediately adjacent to a *C* were counted as violators of that *C*'s personal space. The *C* and the observer were the first to enter the elevator so as to take up randomly assigned positions facing the panels. Throughout the conditions, the *C* faced the panel and avoided eye or voice contact with other elevator passengers.

To establish normative elevator behavior and, specifically, to ascertain a possible panel preference, a baseline observation was made of 100 *S*s prior to the implementation of the experimental conditions. To further eliminate the possibility of a panel preference by *S*s, the initial position of the *C*s was determined by tossing a coin and was counterbalanced in each condition.

2. *Results*

Prior to the introduction of the experimental conditions, selection preference for the right or left floor selection panel was examined. Of 100 *S*s, 49 pressed floor selections using the right panel and 51 used the left selection panel. Thus, when no violation of space was involved, observations indicated no right or left panel selection preference.

With the two experimental conditions introduced and with a choice available to all *S*s, 81 % behaved so as not to violate the space occupied by others, while 19% violated personal space ($X^2 = 47.34$, $df = 1$, $p < .001$).

When the panel space was occupied by the male *C*, 78% of the male *S*s avoided violating his space ($X^2 = 11.11$, $df = 1$, $p < .001$) and 85% of the female *S*s avoided space violations ($X^2 = 12.46$, $df = 1$, $p < .001$). When the elevator panel space was occupied by the female *C*, 85% of the male *S*s avoided violating her space ($X^2 = 20.44$, $df = 1$, $p < .001$) and 74% of the female *S*s avoided space violations ($X^2 = 3.36$, $df = 1$, $.10 > p > .05$).

C. Experiment 2

1. *Method*

As stated above, the elevators used contained both a right and a left floor selection panel. In Experiment 1, either a male or a female *C* stood close to one floor selection panel and the *S* could avoid personal space violation by using the unoccupied selection panel. It was possible to alter the experi-

mental setup so that the *S* no longer had the choice of not violating someone's personal space. By positioning one *C* close to the right panel and, at the same time, a second *C* close to the left panel, an *S* was forced to make a personal space violation. Experiment 2 was carried out with the same procedures as Experiment 1 except that a male and a female *C* positioned themselves 12 inches from each of both panels, the male and female *C*s alternately occupying the right and left panel positions. Chosen from the same *S* pool described in Experiment 1, 93 *S*s were used.

2. *Results*

The assumption was made that having both panels occupied necessarily meant that an *S* would have to make a personal space violation. This is not absolutely the case. An *S* could, after entering the elevator and seeing the two *C*s close to the panels, immediately decide to leave. Also, a more likely possibility, the *S* not wishing to violate personal space could ask either the male or the female *C* to push one of the floor selection buttons. In no case did either of the above occur: i.e., in all cases observed, a personal space violation was made by each *S*.

With the experimental conditions introduced, for the 61 male *S*s, 72% showed a preference to use the panel occupied by the female *C* and 28% showed a preference to use the panel occupied by the male *C* ($X^2 = 11.96$, $df = 1$, $p < .001$). For the 32 female *S*s, 62% showed a preference to use the panel occupied by the female *C* and 38% showed a preference to use the panel occupied by the male *C* ($X^2 = 2.00$, $df = 1$, $p > .10$).

D. Discussion of Experiments 1 and 2

The research literature supports the conclusion that males have larger personal space zones than females (2). This would imply that the invasion of male personal space is more aversive than invasion of female space. The results of the current studies only partially support this contention, but more accurately indicate that more factors are involved and that the relationship of these factors is complex. Situational factors—whether the space violator has or does not have the choice of violating personal space—as well as the combination of sex factors—whether the personal space being violated belongs to a male or a female, and whether the violator is either a male or a female—must be taken into account. In Experiment 1, where *S*s *had a choice* of violating or not violating personal space, males avoided intruding into female space, as well as male space. In fact, the percentage of males who avoided the intrusion into female space

was higher than the percentage of males avoiding intrusion into male space. Only in the case of female *S*s, and where *S*s had a choice of violating or not violating personal space, was some support obtained that the violation of male space was more aversive than the violation of female space.

On the other hand, when the situational factors *demanded a violation* of male or female personal space (Experiment 2), male *S*s showed a significant preference to violate female space, while female *S*s showed no significant sex preference.

The current studies found a strong tendency to avoid personal space violations. This result supports the finding of Barefoot *et al.* (1). However, Barefoot *et al.* found that male *S*s were more prone to avoid space violations (drinking from a water fountain when a *C* was seated close to it) where the personal space was that of a female rather than that of a male. Further, they reported that from an "informal inspection" of a small sample of female *S*s trends were obtained which were similar to those of male *S*s. The results obtained in Experiment 1 are contradictory to these findings of Barefoot *et al.* These findings again emphasize that close attention must be paid to the precise situational factors which are operating when observations are being made. The conditions of the Barefoot *et al.* study, while appearing to be similar to those of Experiment 1, do differ in at least one aspect. In their study, the *S*s who were observed, even though they might have been thirsty and may have wanted a drink, had not outwardly committed themselves to obtaining a drink of water from the fountain. Thus, a self-selection process was operating, since only the very thirsty *S*s would be prone to violate personal space. The evidence presented for *S*s drinking from the fountain where the female *C* sat support this supposition: there was an increased drinking time for *S*s who used the fountain when the female *C* sat close to it rather than some distance from it. In the studies reported here, a person entering an elevator had outwardly committed himself to using the elevator. All *S*s, once in the elevator, had to select a floor to which they wanted to travel, and thus no self-selection process was operating.

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THE EFFECTS OF ACTUAL AND ATTEMPTED THEFT, NEED, AND A PREVIOUS FAVOR ON ALTRUISM*

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SUMMARY

The effects of several variables upon the likelihood of giving money to a confederate (*C*) were studied in two field experiments using male *S*s and *C*s. One hundred *S*s in a restaurant (Experiment 1) and 70 *S*s in a library (Experiment 2) were asked to watch someone's radio, which a *C* later attempted to steal. In the first study, failing to prevent a theft and being asked for money to buy high-nutrition, high-need food increased altruism. In the second study, doing a small favor for someone increased the amount of money given to him but not to others. Both studies showed a nonsignificant tendency for *S*s who had performed a large favor (stopping a thief) to be less generous to the same person if he subsequently requested another favor.

A. INTRODUCTION

It is by now a widely accepted fact that transgression or harming someone leads to subsequent helping greater than that shown by people who have not transgressed (e.g., 4, 5, 7, 15, 20, 21). A separate line of research has produced some evidence for what has been called the "foot-in-the-door" effect (6): that doing a small favor for someone will also increase the likelihood of subsequent helping (6, 10, 11, 19, 22). A number of different theories have been postulated to explain both effects: harming someone has been said to lead to guilt (5), to general negative affect (4), or to an attempt to maintain social consistency (2). Similarly, doing a favor for someone has been suggested to lead to a change in self-perception (6, 19, 23) or to greater salience of the social responsibility norm (10).

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There are problems, however, in assessing the generality of either effect. Research on the transgression-altruism paradigm, although consistently showing that harming someone does lead to greater helping, has been conducted almost totally in laboratory situations, with the attendant problems of suspiciousness and artificiality of the supposed transgression (3, 7, 20, 24). In the few field studies which have been done the "transgression" of bumping into someone (15) or breaking a camera (20) would be relatively easy to blame (correctly) on the other person or an inanimate object.

On the other hand, research on the foot-in-the-door technique, although carried out in a wide variety of settings, has not led to consistently positive results. For instance, one study found that helping in one situation, regardless of reward or punishment, decreased subsequent helping (23); another study found that, regardless of reward or punishment, prior helping increased subsequent helping (10), and a third study found a detrimental effect of punishment and no effect of reward (18). Moreover, the "foot-in-the-door" favors have generally been small (answering a few questions, giving directions or the time, wearing a small pin), leaving open the issue of whether doing a large favor would produce even greater subsequent helping or a rebound effect mediated by an expectation of reciprocity (9).

In the present experiments we attempted to assess the validity of both the transgression-altruism and foot-in-the-door effects in a naturalistic setting in which an *S* could be led apparently to harm or do a large favor for someone. *S*s in the first study were asked to watch some books and a transistor radio for a few minutes while the *C* left and then either had the radio stolen while their eyes were turned or saw another confederate (C_2) apparently trying to steal the radio who acted as if their noticing had caused him not to steal it after all. They were later asked, by either C_1 who had asked them to watch his belongings or by a different individual, C_3, to grant a second request: to donate some money to buy food. If harm doing produces a specific state of sympathy for the person who has been harmed or a need to repair one's self-image before the person who knows one has transgressed, then one would expect that those who have had the radio stolen would be more generous than *S*s in the other conditions only when the person whose radio was taken asks them for money. On the other hand, if a more generalized state of guilt is created or a general negative affective state (4) then one might expect that *S*s in the thief conditions will subsequently be more altruistic, regardless of who asks them for money.

The experience of stopping a thief and in effect doing a large and possibly dangerous favor for someone should lead to subsequent greater

favor-doing, particularly for that same individual, according to self-perception theory. Another theory leading to the same prediction is that stopping a thief would lead to a feeling of success and increased self-esteem, which has also been shown to increase subsequent helping (13, 14). Alternatively, however, it may be that there is a limit to the "foot-in-the-door" effect and that having done a large favor for someone reduces the likelihood of doing a subsequent favor for him, at least until he has reciprocated the favor or unless some reciprocity can be expected (9). This reciprocity approach would suggest that *S*s who stop a thief would be least likely to grant a second request for the same individual, although their likelihood of helping a different person should not be depressed over that in a control condition.

A final variable investigated in this experiment was the effect of the neediness implied by the *C*'s request upon the magnitude of altruism. While the amount of the request was kept constant, the *S*s were asked for money either to purchase high-nutrition items (milk and a sandwich) or low nutrition ones (coke and a piece of cake). Bickman and Kamzan (1) had previously found that supermarket shoppers were more willing to give money to purchase milk than to purchase frozen cookie dough; it was predicted that this finding of greater donations toward the purchase of nutritious, more needed food would be replicated in a restaurant situation where the *C* apparently intended to eat the food immediately.

B. Experiment 1

1. *Method*

a. Subjects. *S*s were 100 males who appeared to the *C*s to be adult and of Anglo-American ethnic background, and who were sitting alone at various restaurants in two New Mexico cities, including a university cafeteria. *S*s were randomly assigned to conditions, and approximately equal numbers of *S*s in each condition were run in each location; two potential *S*s refused to watch the *C*'s possessions and so were not used. The *C*s, who alternated in the three roles, were four men in their twenties, dressed neatly but casually.

b. Procedure. In all but the control conditions, the *S* was approached by C_1 and politely asked, "Excuse me, could you please watch these (indicating a textbook, a note book and a 3" by 4¼" Zenith portable radio in a black case) for a few minutes?" C_1 then disappeared, apparently to get some food or go to the men's room. After about a minute, *S*s in the Stop

Thief conditions saw a supposed thief (actually C_2) brush past the radio noisily, allowing the S to catch him in the act of apparently stealing it. All Ss in these conditions commented on his activities to the apparent thief, who apologized and left. A few minutes later, C_1 returned to the table and thanked the S for watching his things. Then either C_1 (In the Stop Thief-Same) conditions or a C_3 (In the Stop-Thief Different) conditions approached the S and said, "Say, I'm hungry and I haven't any money. Could you give me 50¢ for - - - -?" Ss in the High Need conditions were told "for a glass of milk and a sandwich;" those in the low need conditions were told "for a coke and a piece of cake." If the S donated, he was thanked and debriefed; if not, he was then asked a second request, "Well, can you give me any money at all?" after which all Ss were debriefed.

Ss in the Thief-Same and Thief-Different conditions had the same prior interaction with C_1 as those in the Stop Thief conditions. However, instead of letting himself be caught, in these conditions the "thief" (C_2) waited until the S took his eyes off C_1's possessions and then walked past, taking the radio and concealing it under his coat. One potential S did notice the thief and was debriefed; he was not used as an S. When C_1 returned, he then said to the S in a surprised voice, "My radio is gone! Someone must have taken it!" As immediately as possible thereafter either he or C_3 then asked the S for money for the high need or low need item, exactly as in the Stop Thief conditions. Ss in the control conditions were simply approached by a C and asked for money. Since there was no prior interaction, there was no distinction between Same and Different conditions, although the Cs alternated in this, as well as the other parts.

c. Design. The design was thus a 5 × 2 factorial design with 10 Ss per cell. There were five theft conditions (Stop Thief-Same, Stop Thief-Different, Thief-Same, Thief-Different, and Control), each with half the Ss in the High Need and Low Need conditions. Both percentages of Ss donating and amounts of money given after the first and second requests served as the dependent measures.

2. *Results*

The percentages of Ss giving money to C_1 and the mean amounts donated after the first and second requests are presented in Table 1.

Chi square analyses revealed that there were significantly different percentages of people giving money in the five theft conditions after the first [$\chi^2(4) = 14.98$, $p < .01$] and second [$\chi^2(4) = 16.30$, $p < .01$] requests. The percentages of Ss donating in the Stop-Thief (15%), Thief (52.5%), and

TABLE 1
PERCENTAGES OF *S*s DONATING AND MEAN AMOUNTS GIVEN (IN CENTS) AFTER THE FIRST AND SECOND REQUESTS IN EXPERIMENTS 1 AND 2

Donations	Stop thief-same %	$\bar{X}$ ¢	Stop thief-different %	$\bar{X}$ ¢	(No) Thief-same[a] %	$\bar{X}$ ¢	(No) Thief-different[a] %	$\bar{X}$ ¢	Control %	$\bar{X}$ ¢
				Experiment 1						
High need										
After first request	20	7.5	40	19.0	60	32.5	50	30.3	30	16.5
After second request	40	13.0	60	26.0	80	37.5	60	33.3	40	20.0
Low need										
After first request	0	0	0	0	60	25.5	40	22.5	20	7.5
After second request	0	0	20	6.0	70	30.5	70	28.5	30	10.5
				Experiment 2						
After first request	14	1.8	28	4.3	37	9.2	14	2.9	14	3.4
After second request	14	1.8	28	4.3	50	12.1	21	3.9	28	3.7

[a] This is the "Thief" condition in Experiment 1, the "No Thief" condition in Experiment 2.

Control (25%) conditions are significantly different after the first request [$\chi^2(2) = 13.49$, $p < .01$]; similarly the corresponding percentages of 30%, 70%, and 35% after the second request are also significantly different [$\chi^2(2) = 14.29$, $p < .01$].

The difference between the percentages of *S*s donating in the High (40%) and Low (24%) Need conditions after the first request was not statistically significant [$\chi^2(1) = 2.25$, $p < .05$], nor were the corresponding percentages of 56% and 38% after the second request significantly different [$\chi^2(1) = 2.57$, $p < .05$].

A 5 × 2 analysis of variance on the amount given after the first request revealed that *S*s gave more money in the High Need ($\bar{X} = 21.16¢$) than in the Low Need ($\bar{X} = 11.10¢$) conditions [$F(1,90) = 4.10$, $p < .05$]. There was a significant theft effect [$F(4,90) = 3.94$, $p < .01$] but no significant interaction [$F(4,90) < 1$]. *A priori* comparisons revealed that *S*s in the two Thief conditions donated more than those in the Control condition [$F(1,90) = 5.33$, $p < .05$] and than those in the Stop Thief conditions [$F(1,90) = 14.41$, $p < .01$], with no other differences approaching significance.

Similar findings appeared when the amount of money given after the second request was analyzed. A 5 × 2 analysis of variance on total amounts donated after the second request indicated that *S*s gave more money ($\bar{X} = 26.0¢$) to a High Need than to a Low Need request [$\bar{X} = 15.1¢$; $F(1,90) = 5.13$, $p < .05$]. There was a significant theft effect [$F(4,90) = 4.64$, $p < .01$] but no significant interaction [$F(4,90) < 1$]. *A priori* Scheffé comparisons revealed that *S*s in the Thief conditions again gave more than those in the Control [$F(1,90) = 6.86$, $p < .05$] and the Stop Thief conditions [$F(1,90) = 15.63$, $p < .01$]. However those in the two Thief conditions [$F(1,90) < 1$] and those in the two Stop Thief conditions [$F(1,90) = 1.57$] did not differ significantly from each other.

3. *Discussion*

The results of this study suggest strongly that harming someone, in the sense of failing to watch his possessions and thus letting them be stolen, did indeed lead to subsequent altruism both toward the person harmed and toward another individual. It also appears that *S*s were more willing to donate money to someone who intended to use it to purchase nutritious, highly needed items than to one who would buy items of low nutrition, low need. Perhaps panhandlers are correct to ask for money to purchase a meal when their intention is to purchase a bottle.

This study, however, did not fully explicate the effects of doing a large

favor upon the likelihood of doing a subsequent one. Although the two Stop Thief groups did not differ significantly from each other or from the control group, a glance at the data in Table 1 reveals that there was nonsignificantly less helping in the Stop Thief-Same group, suggesting a possible rebound effect. Experiment 2 was designed to investigate further whether such an effect exists, as well as to see whether doing a small favor will affect subsequent altruism.

C. Experiment 2

In order to see the effects of doing a small favor for someone upon subsequent altruism, *S*s in all but the control group were asked by *C* to watch his belongings. Previous research by Moriarty (17) has shown that such a request makes *S*s more likely to stop or report a thief, but it has not been shown that agreeing to do such a favor will produce greater subsequent altruism in a different situation (being asked for money) or towards a different person. If doing a small favor for someone produces a change in general self-perception, then those who agree to watch a person's belongings would be more generous to anyone who requests a subsequent favor; if it produces instead a change in attitude toward the person for whom the favor was done, then one would expect increased altruism towards him but not towards a different person. The Stop Thief conditions from the previous experiment were replicated here in a different situation to see whether the tendency towards a rebound effect of less helpfulness towards a person who had received a large favor (stopping a thief) would hold up. It was predicted that *S*s in the condition in which the same person asked them to watch his belongings and then for money would lead to the most altruism and that the condition in which the same person asked for money but the *S* had previously stopped a thief would lead to the least altruism. This experiment was carried out in a different setting and with a different request from that of Experiment 1 to increase the generality of the findings.

1. *Method*

a. Subjects, confederates, and design. *S*s were 70 males who were seated alone at tables in a university library. Five potential *S*s refused to watch the *C*'s belongings and were therefore not used as *S*s. Three males in their twenties alternated in the different confederate roles. *S*s were randomly assigned to one of the five experimental conditions: Stop Thief-Same, Stop-Thief Different, No Thief-Same, No Thief-Different, and Control, with 14 *S*s in each condition.

b. Procedure. As in Experiment 1, in all but the control conditions, *S*s were approached by the *C* who was carrying a textbook, notebook, and a Zenith portable radio and asked, "Excuse me, could you please watch these for a few minutes?" In the Stop-Thief conditions, C_2 ostentatiously started to pick up the transistor radio, acted as if the *S* had prevented him from taking it, apologized and left, as in the corresponding conditions of Experiment 1. No such interaction occurred in the No-Thief conditions. C_1 then returned and thanked the *S* for watching his belongings. In the Same conditions he then continued with a subsequent request, "I've forgotten my wallet and I have to Xerox this seven page article," pointing to an article in a history periodical he was carrying. "Could you give me 50¢?" (Copying charges in the library were 7¢ per page.) If the *S* did not give him any money, he then made a second request, "Could you give me anything?" In the Different conditions, C_1 left after collecting his belongings, and C_2 approached the *S* and made the requests. *S*s in the Control condition, as in Experiment 1, were not previously asked to watch the *C*'s belongings but merely asked for money. After their response to the second request, all *S*s were thanked and thoroughly debriefed.

The number of people donating after each request and the amount of money donated served as the dependent measures.

2. *Results*

The percentage of *S*s giving money to the *C* and the mean amounts of money donated after the first and second requests are given in Table 1. The percentages of *S*s in the five conditions who donated after the first and second requests did not differ significantly [$\chi^2(4)$ with Yates' correction = 1.35 and 3.06, respectively, $p > .05$].

An analysis of variance of amounts of money given revealed a significant treatment effect after the second request [$F(4,65) = 2.54$, $p < .05$] but not after the first request [$F(4,65) = 1.34$, $p > .05$]. *A priori* comparisons revealed that *S*s in the No-Thief-Same condition were significantly more generous than those in the four other conditions combined [$F = (1,65) = 9.55$, $p < .01$] and in each of them individually [smallest $F(1,65) = 4.84$, $p < .05$], but those in the Stop Thief-Same condition were not significantly less altruistic than those in the other four combined conditions [$F(1,65) = 2.27$, $p > .05$] and significantly less altruistic only than those in the No Thief-Same condition [$F(1,65) = 8.45$, $p < .01$].

3. *Discussion*

The results of this second study do provide some evidence that doing a small favor for someone, agreeing to watch his books, increased the amount of altruism the *S* subsequently showed to the same person in a different situation, as compared with that shown a person he had not previously helped. However, if the *S* had performed a relatively large and dangerous favor—namely, stopping a thief—then he appeared to be somewhat less likely to help than *S*s in the other conditions and significantly less likely than if he had agreed to help the same person but encountered no thief. These results are more consistent with an interpretation in terms of a change in attitude toward the specific person involved than with a change in self-perception causing one to behave differently to everyone in the future.

Previous research on reactions to theft (8, 12, 16, 17) has concentrated on reporting the theft as a dependent measure. The present experiments have shown that other effects may appear as a result of viewing a theft. *S*s who are led to feel responsible may subsequently be more altruistic to the same or another individual and those who stop a thief showed a nonsignificant tendency in both studies to be less helpful to the individual whose goods they had prevented from being stolen. It also appears that persons who requested assistance to purchase a high-nutrition, high-need item and those who have previously requested a small favor from the *S* were likely to receive more help.

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THE SELF-CONCEPT OF DELINQUENTS IN A BEHAVIOR MODIFICATION TREATMENT PROGRAM*[1]

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SUMMARY

Boys adjudicated for delinquent behavior and living in a setting guided by behavior modification principles were administered a questionnaire with a semantic differential measure of self-concept several times during their stay ($N = 16$). A control group of eighth grade boys ($N = 82$) was given this questionnaire once. As a group, the boys at admission had much more negative feelings about themselves than did the boys in the control group ($p < .01$). However, when the mean of the pretest group was compared with the mean of the posttest group (which was more positive in self-concept than the control group), the delinquent boys were found to have a much more positive self-concept at the completion of their stay ($p < .01$). This shift in self-evaluation was concomitant with a shift in how the boys perceived that significant others (mother, friends, and teachers) evaluated them.

A. INTRODUCTION

Albert K. Cohen has argued that the delinquent gang permits working-class boys to recoup self-esteem lost through defeat in middle-class institutions (1). If this is the case, then delinquents in a behavior modification setting should gain in self-esteem because they (*a*) succeed in the token economy; (*b*) learn the skills that pay off in social relationships; (*c*) improve in skills useful for school; and (*d*) change from socially unacceptable to socially acceptable behavior. The study reported here assesses whether the delinquent boys in a behavior modification treatment home developed more positive attitudes about themselves and how these feelings compared with those of a control group of boys in the community.

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B. Method

The research setting is a community based home ("Achievement Place") where from six to eight delinquent boys reside under the guidance of a trained adult couple. The rehabilitation program is based on a token economy system of reinforcement. In this system the boys receive points each time they complete a task and, at a later time, can exchange the points for desirable objects or for privileges. The goal of the "parents" (2) is to teach the social skills important to be successful participants in the community (e.g., conversation skills, academic skills, prevocational skills, manners, and acceptance of criticism). Research has shown that the products of this setting have fewer police and court contacts, better school attendance and grades, and less recidivism than those other delinquent boys from the community who were placed either in the state boys' school or on probation (3).

A questionnaire including a semantic differential scale devised by Schwartz and Tangri (4) was used in which the respondent was asked to rate himself on each of 10 sets of bipolar adjectives (e.g., I am: good . . . bad; useful . . . useless). These same scales were used to determine each boy's expectation of how his significant others evaluated him (my mother thinks I am . . ., my friends think I am . . ., and my teachers think I am . . .). The questionnaire was administered to each boy ($N = 16$) at the beginning of his stay in Achievement Place, after four months, after nine months, and at the completion of his stay. All eighth grade boys from a junior high school in the community were given the same questionnaire.

A score of 1 (most positive) to 7 (most negative) was recorded for each of the 10 sets of bipolar adjectives. The range of possible scores, then, was 10 to 70.

C. Results

The data in Table 1 demonstrate overwhelmingly that the Achievement Place experience improved the self-esteem of delinquent youths. As expected, the mean score of the entering group was significantly more negative in self-esteem ($p < .01$) than the control group mean. The greater the length of stay in Achievement Place, however, the more positive the self-concept. The posttest group mean not only was significantly different from the pretest mean ($p < .01$), but those completing the program now also differed significantly from the control group, this time in the positive direction. Examined another way, the data show that 80% of the boys entering Achievement Place were *above* the control group mean (i.e., had a

TABLE 1
MEAN SCORES OF ACHIEVEMENT PLACE BOYS AND A CONTROL GROUP ON SELF-CONCEPT AND EXPECTED EVALUATIONS BY SIGNIFICANT OTHERS

Sample	Time of administration			
	Pretest	4 months	9 months	Posttest
Self-concept				
Achievement Place	37.47	27.00	25.36	22.50
Control Group	30.90			
Mother				
Achievement Place	34.87	26.50	27.64	26.62
Control Group	29.92			
Friends				
Achievement Place	29.53	25.25	21.79	20.94
Control Group	29.86			
Teachers				
Achievement Place	35.60	28.40	31.36	30.25
Control Group	34.17			

Note: The higher the mean score, the lower the self-concept or the more unfavorable the perception of others' evaluations.

more negative self-concept), while 75% of the boys at the posttest administration of the questionnaire were now *below* the control group mean ($p < .01$). Clearly, the longer the stay at Achievement Place, the better the self-concept.

Because of restrictions by the local school district, the control group was given the questionnaire only once. This presents a problem for interpretation, since there is a tendency of regression to a mean to occur upon the second administration of a test. This problem is diminished, however, because if regression in the control group had occurred, the differences cited above between it and the experimental group would have been all the more impressive.

A second research question was whether this improvement in self-esteem by previously delinquent youths was reinforced by the attitudes and actions of significant others (parents, friends, and teachers). In other words, if a boy feels that others now view him as more acceptable, more responsible, and more socially skilled than before, then he should begin to view himself differently as well. The data from Table 1 also suggest that this assumption is correct, since the perceived attitudes of significant others did shift in a more favorable direction over time corresponding to the actual change in the self-concept of the boys. As was the case with self-concept, the initial means were consistently higher (less favorable) than those of the control group and lower (more favorable) than the control group at the posttest administration of the questionnaire.

If the means for each significant other at the posttest phase are contrasted with the mean for self-concept for that phase, we find that the self-concept of the boys was more congruent with their perceptions of how their friends evaluated them. This finding is not a startling one, given the enormous dependency on peers for approval and self-definition by persons in this age category. However, there was a lag for the other categories, although both were believed by the boys to improve in their evaluations. Thus, with these categories and especially with teachers, the boys had to fight the consequences of their history of delinquency, the labels this history had attached to them, and the self-fulfilling prophecies these labels tended to encourage. Despite these handicaps, however, a good self-concept appears to be a product of the Achievement Place experience.

D. Discussion

Research has shown that boys in Achievement Place leave the program with improved social, school, and work skills. The present study has also shown that these boys also leave with not only an improved self-image but one that is significantly better than the average for the control group. This change in self-concept should increase the probability of a lasting effect, especially as the boys perceive significant others defining them more positively.

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THE VOICE OF PERSONALITY: STEREOTYPED JUDGMENTS AND THEIR RELATION TO VOICE QUALITY AND SEX OF SPEAKER*

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SUMMARY

This study attempted to determine the relationship between personality judgments from voice and vocal properties of the voice, particularly with reference to the speaker's sex. The taped voices of 57 American college students (25 males and 32 females) were played to 100 raters (also American college undergraduates) who rated the voices on 10 personality traits. Measurements were made of six vocal characteristics for each of the taped voices. There were correlations between personality judgments from the voices and the vocal characteristics of the voices. Raters also used different cues for rating male voices as opposed to female voices. The results were considered in terms of cultural sex role stereotypes.

A. INTRODUCTION

Numerous studies have attempted to establish the validity of judgments of personality from voice. This research has been reviewed by Kramer (12), Mahl and Schulze (17), Starkweather (27), Anisfeld (2) and Duncan (5). In general, previous studies compared listener judgments of such personality traits as extraversion and criterion measures of the same trait, usually via a personality inventory. Kramer's (12) view of this literature suggests that, while some validity of judgment is possible, many of the studies used inadequate measures as the independent criterion for the traits being measured, and the available results, on the whole, indicate limited judgment

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"validity." Starkweather (27), in his review of the literature, is even more pessimistic about the general utility of listening to a voice in order to assess directly the personality of the speaker.

Recent research, generally focusing on more limited aspects of validity, has not suggested a markedly different conclusion (10, 14, 19). Kramer and Aronovitch (14), for example, asked judges to rate a series of voices on the personality dimension of introversion-extraversion. There was no significant correlation between judged degree of introversion-extraversion, and degree of introversion-extraversion as measured by the Eysenck Personality Inventory (6), nor between judgments of introversion-extraversion and judges' own degree of introversion-extraversion as measured by the same inventory. Other approaches attempted to relate voice qualities directly to personality variables, in effect bypassing the aspect of listener judgments of personality (e.g., 9, 18, 21, 22).

It seems clear, however, that people do make personality judgments about other people based, at least in part, on vocal cues. In fact, raters consistently judge certain voices as reflecting various personality characteristics, regardless of whether or not the person whose voice is rated possesses these characteristics. Sanford (24) and Licklider and Miller (16) have pointed out the operation of stereotypes in judgments, a condition which produces agreement among judges more often than agreement with external criteria. Other investigators (20, 24, 26) have pointed to a similar finding. Kramer and Aronovitch (14), for example, found that, of 22 voices judged by a group of raters, interrater consistency was significantly greater than chance for 16 of the voices, and this effective "stereotyping" of particular voices held up when the same judges rated the same group of voices (in different random order) on a different speech sample. The finding of consistent and considerable interrater reliability has been evident in many studies cited above which attempted to assess the validity of judgments from voice. This phenomenon, often referred to as "voice stereotypy," has typically been considered a confounding variable that interferes with a rater's ability to assess accurately personality traits from vocal cues. Kramer (13) has defined "stereotyped voices" as voices which convey a stereotype of some personality trait without the stereotype necessarily having any validity.

Stereotyping, based on language and dialect, has thus been clearly demonstrated (2, 3). That people do make stereotyped judgments and indeed act on the basis of these judgments, regardless of the validity of the judgments, forces one to consider somewhat more carefully the bases for

these stereotyped judgments. Goffman (7) has argued, as have many other role theorists, that the process of impression formation and impression management is determined almost entirely by the expressions a person "gives off" (i.e., nonverbal behavior, which would include vocal characteristics) as opposed to the expressions that a person "gives" (i.e., what he says). It is the contention of this study that more important, perhaps, than the question of the validity of judgments from voice is the issue of the basis for judgments from voice—i.e., what vocal cues or characteristics lead to differential stereotyped judgments of personality. Only a few studies have focused on this issue of the nature (and not validity) of judgments from different samples of speech (1, 4, 15). However, limited acoustical data, narrow range of real voice types, or use of artificial or "reading" voices have limited the interpretation of results in these studies.

The present study attempted to explore more fully the notion of stereotyped judgments from voice, for a sample of American speakers as judged by college listeners. More specifically, if the assumption that raters of personality from voice show consistent interrater agreement is correct, then this consistency of agreement must be based on particular vocal parameters that differ from speaker to speaker, and would be reflected in correlations with judged personality across many speakers. In addition, it may very well be that different stereotypes are attached to male as opposed to female voices, a dimension usually neglected in previous studies. The present study was concerned with what judgments people make from voice cues, and how these judgments are related to specific vocal parameters, and not the validity of these judgments.

The questions investigated were (*a*) What vocal parameters are related to judgments of various personality characteristics? (*b*) Are these relationships between personality and vocal cues dependent upon either the sex of the speaker or the sex of the rater? The vocal characteristics chosen were selected because they were acoustically measurable, thus providing some degree of specificity and reliability.

B. Method

The design of this study involved the preparation of (*a*) tapes of speakers' voices which were used to elicit rater judgments; (*b*) a personality rating instrument on which voices were rated; and (*c*) a typescript of the speech samples as a control for content. Finally, each of the speakers' voices was measured on each of the six vocal characteristics selected for this study.

1. *Preparation of the Voice Sample*

Initially, the voices of 75 *S*s were recorded on one channel of a Sony 355 stereo tape recorder while they spoke into a Sony F-18 microphone in an acoustically isolated room in the Teachers College, Columbia University Speech Center. All *S*s were native English speakers, recruited from the student body and staff of Teachers College, Columbia University, and the surrounding community of Morningside Heights. All speaker *S*s were told that the task was one of standardizing certain instruments for speech measurement, and that the focus of the task was not on the speaker, but on calibrating certain instruments. After the speech task, *S*s were informed of the actual nature of the experiment, and permission was secured for use of their voices.

Ideally, for maximal generalization, *S*s should be speaking spontaneously in a normal situation. However, since spontaneous speech does allow wide content variation, and since content is an important variable in determining judgments of the speaker's personality, this study attempted to approximate spontaneous speech while keeping content at least restricted and reasonably neutral and innocuous. Thus, for the speech task, *S*s were shown five different pictures which consisted of simple drawings (such as a man mowing a lawn) on 7″ × 9″ cards, and were instructed for each picture to "say who was in the picture, what they were doing, and with what." The cards were chosen because of their simplicity and apparently innocuous content and, in pretests with *S*s, seemed to elicit neutral content.

From the initial speaker sample of 75 voices, 57 voices were retained and included in the final tapes that were used for personality ratings. The 18 voices that were eliminated were rejected for various reasons, including obviously idiosyncratic content, such as lengthy, highly detailed descriptions; severe postural shifts (thus misaligning mouth and microphone); and history of speech or hearing disorders. The final 57 speakers were all native English speakers with no history of obvious speech impairment, and all spoke what might be characterized broadly as northeastern American, as judged by a speech clinician.

The voice recordings of the final 57 speakers were dubbed onto two final tapes, selecting enough picture descriptions to provide a final sample of speech for each speaker that was of approximately 10 seconds duration. Since each speaker had vocally described each of five pictures, the final sample for any speaker consisted of at least one and up to five spoken descriptions. If more than a single description was needed to provide a

total of a 10-second speech sample for that speaker, a second (or third) description was added, separated on the tape by one second of clearly nonspeech time. In no case was a single picture description edited; a description of a picture was either used whole or not at all. For the final tape, an announcer introduced each voice (e.g., "Speaker #32). For each voice, the announcement was followed by a three-second pause, then the speech sample, then a five-second pause, and finally the speech sample repeated.

For the final tapes, the order of voices was randomly assigned for male and female voices. Ultimately, two final tapes emerged: the first tape (Tape 1) consisted of 12 male and 16 female voices in a predetermined random order numbered 1-28, and the second tape (Tape 2) consisted of 13 male and 16 female voices numbered 29-57, also in a predetermined random order. Each tape also consisted of a "practice voice" at the beginning, labeled "Practice Voice A," which was used to familiarize raters with the task. The practice voice was not included in the data analysis.

2. *Preparation of the Personality Rating Instrument*

Because the interest in this study was on personality variables that *S*s believe they can judge from vocal cues alone, the first step in the preparation of the personality rating instrument was a pretest to determine which personality variables *S*s believe that they can confidently rate from voice. From the extensive literature on judgments of personality from voice, a list of 54 traits was gleaned which had been used in previous experiments. The traits were cast into the form of seven-point polar adjective scales. A sample of 40 undergraduate *S*s was instructed to rate each of 10 voices (selected from the final tape) on as many, and whichever, of the 54 scales as they felt they could "confidently make judgments."

The 54 polar adjective scales were then rank-ordered in terms of frequency of choice and, of the 15 most frequently chosen, 10 were finally selected which seemed to give the broadest and least redundant description of different aspects of personality. The final 10 traits (in the form of polar adjectives) were the following: (*a*) Self-doubting—Self-confident, (*b*) Extraverted—Introverted, (*c*) Kind-Cruel, (*d*) Bold-Cautious, (*e*) Lazy-Energetic, (*f*) Sociable-Unsociable, (*g*) Humorous-Serious, (*h*) Mature-Immature, (*i*) Submissive-Dominant, (*j*) Emotional-Unemotional.

The final instrument consisted of a booklet containing an instruction sheet; 30 identical pages of rating scales, with space to mark each one appropriately; and a final sheet which asked for biographical information.

The order of the traits to be rated was thus the same for every voice, and the poles of each of the traits to be rated was thus the same for every voice, and the poles of each of the seven-point scales were initially randomly assigned to eliminate ratings in a single direction by simply adhering to one side of the page or the other.

3. *The Rater Groups*

Tape I (Voices 1-28) was played to a group of approximately 100 Columbia University undergraduates. From this initial group of raters, 50 were retained and formed the rater sample for Tape 1. Raters were eliminated who were not native English speakers or who had not fully completed the rating task. Of the 50 final raters, 29 were males and 21 were females.

Tape 2 (voices 29-57) was similarly played to approximately 80 Columbia University and Brooklyn College undergraduates and, as above, 50 were retained as the final rater group.

Raters were presented the task in a group setting (group size ranging from 20-100 *S*s). The tape was played through an amplifier and two loudspeakers, each loudspeaker being placed in each of the front corners of the room at a 45° angle to the raters. The volume level was subjectively adjusted by *E* to approximate normal speech level. Raters were briefly introduced to the task, with the explanation that people could make meaningful judgments of personality from voice tapes. The directions were read by *E* as each *S* followed them as they appeared in his booklet. The practice voice was then played, *S*s rated the practice voice, and then any further difficulties or questions were handled. *E* then played the first voice and allowed *S*s approximately 45 seconds to make their ratings. The second voice was then played, etc., allowing raters approximately 45 seconds after each voice sample to make their rating.

4. *Content Control*

In order to insure that ratings were being made on the basis of voice cues and not content, despite the apparent innocuousness of the content, a typescript of the speech sample was made for each of the 57 speakers. The typescripts for each speaker were arranged in a booklet, each speaker's typescript followed by the same 10 rating scales used in the main task. A group of 17 college undergraduates were presented these booklets, with directions indicating that each written segment was a sample from a transcription of speech from a speaker. The *S*s were instructed to read each of the typescripts and, based on this sample of written speech, to assess the personality of each speaker on each of the 10 seven-point scales.

5. *Measurement of the Voice Parameters*

a. Rate. The actual speech samples for each speaker were timed, and the number of vocalized syllables per time unit was counted. Rate was computed as the number of syllables per one second of time for each speaker.

b. Intensity. The tape recordings of each speaker's voice were analyzed by a Bruel and Kjaer Graphic Level Recorder, Model 2305. For each speech sample of each speaker, the peak intensity was graphed in dB re: 100 mV over an entire statement, with the use of an averaging time of approximately three seconds. For a given statement, each peak and trough on the resulting graph paper represented intensity peaks and troughs in that statement. From the graph paper, then, intensity peaks and troughs in dB were read off, which provided a measure of the average intensity and variance in intensity for each speaker. Intensity as thus measured, bears a close relationship to what is subjectively perceived as loudness.

c. Sound-Silence Ratio. The tape recordings of each speaker's voice were fed into a Lafayette Instrument Model 1604A voice-activated relay, which was then connected to a Hunter Model 120A, Series D electronic timer. A method essentially similar to the one described by Ramsay and Law (23) was used, by means of which measures of lengths of utterances and lengths of pauses were made. From this, a sound-silence ratio was calculated for each voice, this simply being the ratio of speech (or vocalized) time to pause (or nonspeech) time within a given statement.

d. Fundamental Frequency. The tape recordings of each voice were played into a Kay Elemetrics Model 6061A Sound Spectrograph with a range from 40-4000 Hz. A printout was obtained for each speaker. From these measurements, a measure of the average fundamental frequency and variance in fundamental frequency was calculated for each voice. Fundamental frequency bears a close relationship to what is subjectively perceived as pitch.

C. Results

1. *Comparison of the Two Tapes*

Means and standard deviations of the judgments of the 50 raters on the 10 traits for the 28 voices of Tape 1 were compared with the means and standard deviations of the judgments of the 50 different raters on the 10 traits for the 29 voices of Tape 2 by t tests. With the exception of ratings on the "mature-immature" dimension, there were no significant differences for the two tapes. Two tapes were initially prepared to reduce rater fatigue.

2. *Relationship of Acoustic Parameters to Personality Judgments*

The correlations between judged personality on each of the 10 traits and the six vocal parameters were computed for Tape 1 and for Tape 2 for male voices and for female voices. Although there are some differences between Tape 1 and Tape 2 in significant relationships, in general the directions of the relationships are similar for the two tapes, and differences in levels of significance appear to reflect the somewhat restricted range of variation due to the relatively small number of voices in each sample. As Tape 1 and Tape 2 were quite similar in the range of vocal parameters in question, and showed little difference in the fashion in which they were rated on each of the 10 personality traits as noted above, average correlation coefficients were computed as an estimate of the correlation over the two tapes. The average correlations were the arithmetic means of the correlations for Tape 1 and Tape 2, as suggested by Guilford (8). Further discussion of relationships between judged personality and vocal characteristics employs the averaged correlations of the two tapes.

As can be seen from Table 1, there were significant relationships between many of the personality traits and particular vocal characteristics. In general, the magnitudes of the correlation coefficients tended to be moderate. For some traits (e.g., sociable-unsociable) there were no significant correlations between any of the judged traits and the vocal parameters for either male or female speakers, while for other traits the pattern of significant correlations differed for male and female speakers. The fact that significant correlations did emerge supports once again the prevalent finding of "voice stereotypy," or high interrater reliability in the assignment of particular traits to particular kinds of voices. Further, the relationships that emerged in this study indicated that these "voice stereotypes" are based, at least in part, on distinctive, measurable properties of the human voice, and the consistent agreement among raters of these judgments for many voices are related, then, to nonlinguistic vocal variations among different speakers.

Perhaps the most striking finding that emerged from the breakdown by sex of speaker was that the pattern of correlations was almost entirely different for different speakers. For male speakers, all significant correlations between judged personality and vocal characteristics were for the vocal parameters of Intensity Variance, Fundamental Frequency Variance, and Rate. There was not a single significant correlation, for male speakers,

TABLE 1

AVERAGED CORRELATION COEFFICIENTS OF JUDGMENTS AND VOICE PARAMETERS FOR EACH OF 10 TRAITS FOR FEMALE VOICES (FV) AND FOR MALE VOICES (MV)

Traits	Intensity average		Intensity variance		Rate		Fundamental frequency average		Fundamental frequency variance		Sound-silence ratio	
	FV	MV	FV	MV	FV	MV	FV	MV	FV	MV	FV	MV
Self-doubting—self-confident	.51**	−.21	.26	.53**	.48**	.43*	−.22	−.04	.17	.44*	.47**	.31
Extraverted-introverted	−.55**	−.19	−.32	−.52**	−.40*	−.38	.05	−.06	−.21	−.40*	−.48**	−.27
Kind-cruel	.26	.23	−.02	.45*	.16	.21	−.45**	−.12	.00	.39	.28	.24
Bold-cautious	−.52**	−.24	−.24	−.57**	−.48**	.45*	.15	−.03	−.14	−.44*	−.44*	−.34
Lazy-energetic	.57**	.26	.32	.30	.42*	.27	−.01	.15	.16	.25	.44*	−.16
Sociable-unsociable	−.19	−.10	−.23	−.19	−.09	−.12	−.28	−.20	−.16	−.04	−.17	−.17
Humorous-serious	.19	−.10	.00	−.20	.10	−.25	−.39*	−.24	−.21	−.04	.00	−.06
Mature-immature	−.42*	−.09	−.14	−.16	−.31	−.29	.55**	.33	.08	.37	−.31	−.30
Submissive-dominant	.44**	.20	.21	.55**	.37*	.42	−.32	−.14	.15	.50*	.39*	.34
Emotional-unemotional	.20	−.03	.04	−.12	.37*	.15	−.48**	.37	−.18	−.04	.10	−.10

Note: For male voices $n = 25$; for female voices $n = 32$.
* $p < .05$.
** $p < .01$.

between judged personality and Intensity Average, Fundamental Frequency Average, or Sound-Silence Ratio. For female speakers, on the other hand, all significant correlations between a judged personality characteristic and a vocal characteristic were for the vocal parameters of Intensity Average, Fundamental Frequency Average, Rate, and Sound-Silence Ratio. For female speakers, there was not a single significant correlation with the vocal parameters of Intensity Variance or Fundamental Frequency Variance. Judgments of personality from women's voices, then, were related to the vocal characteristics of speech rate, speech time, and average loudness and pitch, while judgments of personality from men's voices were related to the vocal characteristics of speech rate and variation in loudness and pitch.

3. *Male vs. Female Raters*

In view of the different patterns of significant correlations for male as opposed to female voices, a further breakdown of the data was performed in terms of the sex of the rater, in order to determine if the differences between male and female voices could be accounted for on the basis of the rater's sex. For male speakers, the pattern of significant relationships noted above was, in general, independent of the sex of the rater. Male and female raters tended to rate male voices in a similar fashion, relying almost entirely on the vocal characteristics of pitch variation, loudness variation, and rate. For female speakers, as with male speakers, the pattern of significant relationships seemed also largely independent of the sex of the rater. Male and female raters tended to rate female voices in a similar fashion, using the vocal characteristics of average loudness, average pitch, rate, and sound to silence time. As with male voices, then, sex of rater seemed generally unimportant. Insofar as sex of rater is concerned, both male and female raters tended to judge male and female voices essentially alike.

4. *Control for Content*

Although the speech task employed attempted to insure that the content of the speakers' speech samples would be relatively neutral, some significant correlations between judgments from voice and judgments from the typescript were apparent for a few of the traits. However, in general, the correlations between judgments from voice and judgments from the typescript were low and not significant. For the averaged correlations of

the two tapes, typescript judgments were significantly correlated with judgments from voice for the traits of self-doubting—self-confident, bold-cautious, and mature-immature. For these three traits, therefore, partial correlation coefficients, based on the average correlations, were computed, in which content was partialled out.

As can be seen in Table 2, in almost every case, the magnitude of the correlation was little changed, with almost no change in the pattern of significant correlations. For the trait of mature-immature, two of the four relationships dropped just below the level required for significance at the .05 level, with little change in magnitude. Thus, with content held constant for those traits in which significant correlations occurred between judgments from the voice and judgments from the typescript, there was almost no change in the pattern of relationships noted earlier. It would appear that content had little, if any, effect, and was roughly neutral across speakers.

TABLE 2
CORRELATION COEFFICIENTS AND CORRESPONDING PARTIAL CORRELATION COEFFICIENTS PARTIALLING OUT CONTENT FOR TRAITS SHOWING SIGNIFICANT CORRELATION OF TYPESCRIPT JUDGMENTS WITH JUDGMENTS FROM VOICE

Traits and vocal parameters	Correlation coefficient	Partial correlation coefficient
1. Self-doubting—self-confident		
Intensity average	.40**	.32*
Intensity variance	.41**	.34*
Rate	.40**	.35**
Fundamental frequency average	—	—
Fundamental frequency variance	.29*	.28*
Sound-silence ratio	.40**	.37**
2. Bold-confident		
Intensity average	−.44**	−.37**
Intensity variance	−.40**	−.36**
Rate	−.41**	−.37**
Fundamental frequency average	—	—
Fundamental frequency variance	—	—
Sound-silence ratio	−.48**	.45**
3. Mature-immature		
Intensity average	−.31*	−.22**
Intensity variance	—	—
Rate	−.29*	−.25
Fundamental frequency average	.32*	−.29*
Fundamental frequency variance	—	—
Sound-silence ratio	−.30*	.29*

* $p < .05$.
** $p < .01$.

D. Discussion

The current study has found that college raters consistently attribute particular personality characteristics to particular American speakers on the basis of samples of the speakers' voices. The six vocal characteristics examined represent only some of the possible measurable characteristics of the voice. It is likely that information on which trait attribution is based may be carried by other physical characteristics, such as resonance, degree of "breathiness," and rhythm. The relationships that emerged in this study were of a moderate magnitude, accounting for perhaps less than one quarter of the variance. With the addition of further voice characteristics, it may be possible to account for a larger portion of the variance. The findings of this study, then, appear to provide some further clues to the process of trait attribution from voice, and trait attribution more generally considered. It suggests beginning answers to the questions of why and how voices are stereotyped in particular ways.

The most striking finding suggests that although both male and female voices are stereotyped in personality judgments from voice, the cues upon which these stereotyped judgments were made differed for the two sexes. The one cue used commonly for both male and female speakers was speech rate.

Pitch and loudness are both cues upon which judgments of a speaker's personality were found to be based, but the manner in which these vocal characteristics were employed differed for male and female speakers. Apparently American men were assigned particular personality traits on the basis of the degree of variability in these vocal characteristics, whereas American women were assigned particular personality traits on the basis of the average or mean measures of these characteristics. Perhaps American men were stereotyped *a priori* as more stable and women as less stable. For trait attribution, then, intraindividual variability was a significant clue if it was a male speaker, whereas the perceived average or mean of a parameter was a more relevant clue it it was a female speaker, who is considered, perhaps, to show more intraindividual variability anyway.

The differences in cue utilization for American male and female speakers noted may reflect cultural stereotypes of sex differences. For example, Sherriffs and McKee found that sex stereotypes held by college males and females considered men ". . . intellectually rational and competent, and bold in dealing with the environment. Men's undesirable characteristics are largely limited to excesses of these traits" (25, p. 263). Women, on the other

hand, are regarded as ". . . guilty of snobbery and irrational and unpleasant emotionality" (25, p. 263). Johnson and Terman's (11) review of some 20 years of research on psychological sex differences in the area of personality found less emotional balance in the female than in the male. In addition to possible cultural factors regarding the socialization and identification of males and females, Johnson and Terman attribute this difference to basic physiological differences in homeostatic mechanisms, arguing that research points to greater intraindividual variability for females than for males in many physiological mechanisms. Apparently, then, males in this culture are perceived stereotypically as more stable and less variable, at least by groups of college raters. This being the case, it is not surprising to discover that deviations from presumed stability provide personality information about males, whereas for the presumably more variable female, averages and not variability provide the relevant information. The findings of this study, then, may reflect the widely held American cultural stereotypes, and imply that modes of personality perception based on voice cues are, in part, based on these stereotypes.

In light of this, it is not unexpected that there were no significant differences in the perceptions of male as opposed to female raters of personality. Although some differences in the perceptions of male and female personality dependent on the sex of the perceiver are apparent (25), the cultural role stereotypes described above seem to be held, in general, by both sexes.

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ON THE SOCIAL LAW OF EFFECT*[1]

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SUMMARY

This paper suggests that exposure to task related stimuli prior to task interaction should result in greater discrimination in making task related decisions. This is explained in terms of a social version of the law of effect, and reflected in the value of the slope in a regression equation. *S*s were college freshmen and sophomores enrolled in sociology classes. *S*s formed a total of 40 dyads, controlled for sex. Twenty dyads (10 dyads of males and 10 of females) formed the experimental groups. The remaining 20 dyads (10 male and 10 female) formed the control group. *S*s engaged in a simple task consisting of a word game which allowed the investigators to measure response and reinforcement rates. Results from the experiment were found to support the hypothesis at the .0001 level of significance. These results indicate that a social law of effect may be applied to relatively unstructured social situations, and that exposure to different types of environmental stimuli alters the slope of the regression equation relating reinforcement and response in a social version of the law of effect.

A. INTRODUCTION

For many years psychologists have studied the phenomenon designated the "Law of Effect." This principle may be stated as follows: the probability of a specified response occurring is a positive function of the probability of that response being reinforced. This definition is a simple equivalent of those presented by Thorndike (13), Skinner (10), and Herrnstein (6). This basic principle may be widely accepted for *individual behavior*, but is

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difficult to apply to relatively unstructured *social* situations. While the law has been identified implicitly in reinforcement terms [*cf.* the theoretical work of Thibaut and Kelley (11)], it has rarely been directly examined empirically in unstructured groups.

The basic problem in applying a "law of effect" to social phenomena lies in the fact that more than one organism is simultaneously involved. For instance, if the probability (relative frequency) of verbal activity were the variable of interest, we should *not* expect the probability of a response by person 1 to increase in proportion to increases in his reinforcement rate, since person 2 may be so verbose that the floor is effectively denied to person 1. Additionally 2's reinforcement rate from social sources may itself be changing in a manner which affects his probability of response. As noted by Watzlawick and Beavin (16), any single act in social interaction may function as a stimulus, response, *and* reinforcement; thus it becomes apparent that a "Social Law of Effect" must take into consideration the response and reinforcement rates of *all* individuals in the situation simultaneously.

1. *The Social Law of Effect*

We shall be primarily concerned with the relationships between two variables: (*a*) the relative frequency with which a person engages in *directive activity* (in a group of specified duration); and (*b*) the relative frequency of a person receiving *compliance*: i.e., being allowed to direct the groups' behavior during the period to be studied. Directive activity constitutes a response which specifies its own reinforcer [*cf.* Adams and Romney (1), Mayhew *et al.* (9)]. Compliant activity constitutes responses which are emitted by the recipient of directive activity, and are in accord with directives. Compliance may serve to reinforce initiation of directive activity.

In relatively unstructured social situations either of these variables may be considered dependent. This appears to be in contrast to single organism versions of the law of effect. The important difference lies in the distinctions indicated by Watzlawick and Beavin (16) regarding the multiple functions of human social behavior. While response rate (directive activity here) would seem to be the logical dependent variable in a single organism situation, this is not the case in interactive multiorganism situations. In these cases it may well be that the initiation of directive activity on the part of one person reinforces the response of compliant behavior on the part of another (such might be the case if group goals of some importance are

accomplished through the presentation of compliant behavior). Similarly compliant behavior presented to one person should serve as a reinforcer for the initiation of directive behavior on his part.

Because of the complexity of this situation it appears that the choice of a dependent variable depends largely upon the focus of a particular study and the ability of the E to maintain control over one or the other of the variables. In the present case we shall work with situations in which the E has limited control—thus the choice of a dependent variable is arbitrary. In order to point out the similarity of the present approach to some of those dealing with social power [*cf.* Gray *et al.* (5), von Broembsen *et al.* (15), Adams and Romney (1), Dahl (3), French (4), Mayhew *et al.* (9), and Leik (8)], we shall designate the relative frequency of compliance the dependent variable.

In the dyadic instance to be discussed here our two variables may be defined as

$$a_1 = \frac{A_1}{A_1 + A_2}, \qquad [1]$$

which is the relative frequency of directive activity initiated by person 1, where A_1 indicates the frequency of directive activity initiated by person 1 and A_2 indicates the frequency of directive activity initiated by person 2; and

$$c_1 = \frac{C_1}{C_1 + C_2}, \qquad [2]$$

which is the relative frequency of compliance received by person 1, where C_1 indicates the frequency of compliance received by person 1 and C_2 indicates the frequency of compliance received by person 2. Values of a_2 and c_2 may also be defined so that $a_2 = 1 - a_1$ and $c_2 = 1 - c_1$.

Additionally, we must define a reinforcement variable, r_i, which may be estimated as C_i/A_i which indicates the relative frequency with which compliance is received by an individual, on the assumption that a directive act has been sent. In single organism learning theories we would ordinarily proceed to specify a relationship between r_i and a_i such that the relationship between c_i and a_i could be readily determined. That is not the case here as a result of the social nature of the activity considered.

Because all participants are operating simultaneously in an interaction situation, the effects of reinforcing stimuli must be considered to be operating jointly, though not necessarily identically, on all participants. The

implication of this line of thought is that the "strengthening" effects of an appetitive stimulus may vary from individual to individual. It is this notion which requires that we develop a *social* law of effect in addition to that for single organisms. All organisms do not respond at the same rate or level under identical conditions. Thus these variations must be taken into account when we attempt to deal with several interacting organisms.

A convenient starting place for the derivation of a clear statement regarding the relationship between the relative frequencies of directive activity and compliance lies in consideration of "odds ratios." If we take the ratio of person 1's directive activity to person 2's, we have constructed an odds ratio for directive activity. Similarly, we can construct an odds ratio for compliance or reinforcement. The reason for this approach lies in the social nature of the situation. Persons in groups are certainly aware of differences in the extent of their participation and the perceived rewards achieved by group members. Perception of such differences activates a comparison process in which an individual's performance and success must be judged in terms of these dimensions for other group members. Similarly, as noted earlier, in group situations individuals do not control their own rates of performance by themselves, but depend upon the others in the group to reinforce them and to allow them to respond when they wish. The preceding arguments lead us to expect that

$$\left[\frac{a_1}{a_2}\right] = f\left[\frac{r_1}{r_2}\right], \qquad [3]$$

which indicates that the odds ratio for the relative frequency of activity should be a function of the odds ratio for reinforcement. Even though reinforcement in social situations is highly difficult to measure with any degree of precision, we still expect that the activity of one person relative to another should be related to their perceived levels of relative reinforcement. Now the important question involves the nature of this function.

If person 1 were much higher than person 2 on activity, then we would expect that his rate of reinforcement was also higher. In some simple situations we might expect that the two ratios would be identical so that the "matching law" [*cf.* Killeen (7)] holds, but there is good reason to believe that this will often not be the case, especially in short term or exploratory situations.[2]

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[2] By exploratory situations, we mean those in which a system has not reached balance, or where reinforcement contingencies have not been identified by participants in interaction.

If a relationship exists between r_i and a_i which is positive monotonic, then we should expect a power function to hold between the odds ratios. This holds true even if the relationships between r_i and a_i vary by individual and if individuals are learning at different rates [*cf.* Gray, *et al.* (5)]. This sort of phenomenon should occur to the extent that group members are not equally affected by reinforcing responses, and to the extent that group members may be willing to reinforce talented group members more strongly while a group orientation period is present [*cf.* Bales (2)].

There are several reasons to feel that this relationship is most appropriate. Primarily, it allows either odds ratio (depending on the specific value of the power parameter) to be a good deal larger or smaller than the other. In other words, person 1 might act a great deal more than person 2 but have only a slightly higher reinforcement rate (i.e., the system has not reached balance because the two persons do not learn at the same rate). Similarly, a discrimination effect may come into play. Especially in the early stages of attempting to deal with an environmental problem a group may be willing to comply with members out of proportion to their activity while not altering response rates greatly, since the group is engaged in exploratory behavior and is attempting to discover the "correct" contingencies. Finally, a relationship of this sort is necessary in order to preserve the probability structure of the data; no values can exceed 1 or fall below zero. The power function allows us to retain these limits on predicted values of compliance.

By utilizing the operational definition used to estimate probability of reinforcement and the power functional relation, we may show from equation [3] that in dyads

$$\left[\frac{c_1}{c_2}\right] = \left[\frac{a_1}{a_2}\right]^B, \qquad [4]$$

so that the odds ratio for compliant activity is a power function of the odds ratio for directive activity. As we have pointed out, this form of relation allows the maintenance of the proper boundaries for probabilities while also allowing for the development of discrimination such that group members may be differentially compensated for their directive activity.

By taking the logarithm of both sides of equation [4] we find that a linear equation results, so that

$$\ln\left[\frac{c_1}{c_2}\right] = B \ln\left[\frac{a_1}{a_2}\right], \qquad [5]$$

which is nothing more than the familiar logit function of each odds ratio expressed in a linear relationship with zero intercept [*cf.* Thiel (12)].

Since our basic interest is in the relationship between the relative frequency of compliance received and the relative frequency of directive activity initiated, we may transform equation [5] into the more direct relationship given by

$$c_i = \frac{a_i^B}{a_i^B + (1 - a_i)^B}, \qquad [6]$$

so that c_i may be expressed as a function of a_i. Now, to expand on the implications of this relationship we must consider in more detail the interpretation of the value of B.

Simple logic tells us that in undifferentiated groups the best fitting line of relationship between the relative frequency of compliance and the relative frequency of directive activity must pass through three points: (*a*) 0,0 (since the absence of activity must imply the absence of compliance); (*b*) ½, ½ (since in undifferentiated dyads we would expect a person who initiates the mean amount of activity to receive the mean amount of compliance); and (*c*) 1,1 (a person who initiates all the directive activity in a group must receive all of the compliance emitted).

The shape of the curve need not be linear through these three points. If B is greater than 1, then compliance increases more rapidly than directive activity and an "S" shaped curve results. This will occur if a positive monotonic relationship exists between the relative frequency of directive activity and the probability of reinforcement (even if individual differences occur); such a result may indicate that the members of a group are discriminating on the basis of the "quality" of activity initiated and are reinforcing members at different rates depending on the quality of their suggestions. A value of B which is less than 1 indicates that compliance increases less rapidly than directive activity (an inverted "S" will result); this points to an overly equalitarian relationship. A value of B which is equal to 1 indicates the presence of a "matching" relationship in which the relative frequency of compliance is equal to the relative frequency of activity; this result would occur in the event that reinforcement rates were independent of directive activity.

2. *Situational Effect on* B

Since B may be interpreted as a measure of discrimination in a group—i.e., reinforcement occurring with respect to ability at the task in

question—we may hypothesize differences in *B* across experimental situations. Suppose we consider dyads under two different conditions: (*a*) exposure prior to interaction to extraneous stimulation (i.e., stimulation unrelated to later group activity at the criterion task); and (*b*) exposure prior to interaction to stimuli designed to increase their initial discriminatory ability at the criterion task. Our hypothesis is that exposure to task related stimuli should result in a higher value of *B* indicating greater discriminatory power in the short run. Similarly, exposure to extraneous stimuli should result in a lower value of *B* (closer to 1), since such stimuli should not cue discriminatory mechanisms.

B. Methods

1. *Sample*

The participants in the study were college freshmen and sophomores enrolled in elementary sociology courses. The original sample was randomly divided by sex into groups of two. Forty dyads were used: 20 male and 20 female groups, for a total of 80 individual *S*s.

2. *Incentives*

Although past experiments have indicated that *S*s seem to enjoy the task (a word game) in and of itself, a monetary incentive to participate was provided. Members of the most productive male and female groups were awarded $5.00 per person. The *S*s were told during the instruction period that they would be competing with other groups experiencing the same treatment (though *S*s were not made aware of the nature of the treatments). The probability of gaining a monetary reward was one out of five.

3. *Experimental Stimuli*

The *S*s were told they were to participate in a study involving mass mediated stimuli and social interaction. Before interaction began half the groups were exposed to a five-minute presentation containing slides of a *neutral* nature (these were brilliantly colored fluorescent slides of psychedelic design, with no identifiable content, created by black light photography). While our basic interest was not in the effects of this exposure *per se*, these slides seemed to be a good starting point because of the nonrelevance for the interactive task. There were no cues in the slide presentation that could have been used to guide behavior in the interactive task the *S*s subsequently engaged in. The remaining groups received exposure to slides depicting persons engaged in the task. These stimuli were

relevant for subsequent interactive behavior as they provided strategy suggestions, depicted proper play, and presented examples of playing errors.

4. *Interactive Behavior*

The task used in the interactive phase of the experiment consisted of the formulation of English words from a set of 13 letters printed on a card placed before each *S*. Each letter was associated with a point value in inverse proportion to the appearance of the letter in the English language. The object of the interactive task was to accumulate points for the group through the use of the letters in words. The score for a given word was the sum of its individual letter points.

The *S*s met in a laboratory room. Upon entering, they were seated in audience fashion and the appropriate slides shown. After presentation of the slides, they were divided into random pairs and seated at a small table. Once seated a tape recording of the instructions was played. The rules, procedures, the nature of the task, and the reward possibilities for each *S* were included in the instructions.

Each game consisted of each *S* examining the letters at the top of the appropriately numbered card. When one of the two persons in the group had decided on a possible word to be formed, he raised his hand to indicate to the other person that he had a suggestion to make and then wrote the suggested word along with its point value in a space provided on the card. The person making the suggestion then showed the suggestion to the other person, who indicated his acceptance or rejection of the suggestion by writing a + (acceptance) or − (rejection) in the allotted space on his card and showing it to the person who made the suggestion. If the other indicated rejection, then the suggestion was rejected and the dyad continued with the process of suggestion and decision until a word was finally accepted for that set of letters. Since both *S*s in each dyad were recording their interaction, the *E* had a built-in reliability check on the recording of data. In all cases any member of the dyad could suggest a word at any time, as long as no other word suggestion was pending decision.

The only restriction in terms of time and number of games to be completed was a 50-minute time limit. No direct spoken communication was allowed among dyads once the interactive task had begun; all interactive behavior was written. The game situation employed here is similar to that described by von Broembsen *et al.* (14); the only difference was the use of written, rather than spoken communication. In all cases at least one

observer was present to assure that the participants followed the rules of the game. No significant departures from the expected procedures were noted.

C. Results

Figures 1 and 2 indicate the relationships between the variables for the two test situations utilizing a least squares estimate of B based on equation [5]. It can clearly be seen that the estimated value of B is higher for the groups exposed to the relevant stimuli (game playing), and that the correlation is higher. A test of the differences between the two B values yields a t statistic of 5.188 at 18 degrees of freedom, a value that would occur less than once in 10,000 times by chance under the null hypothesis of no difference by treatments. The general conclusion appears to be that for group situations the intrusion of extraneous stimuli, rather than relevant stimuli, forces something close to a matching relationship among the variables; while stimuli designed to promote discrimination force an "S" shaped relationship. While an "S" shaped curve [*cf.* Herrnstein (6)] appears in both figures, the extent of the bend is much more highly pronounced in the case of relevant stimulation, as was expected.

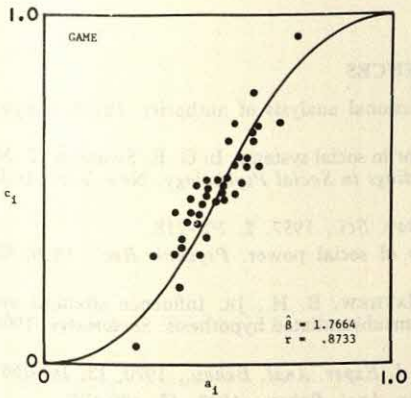

FIGURE 1

The Relationship Between the Relative Frequency of Compliance (c_i) and the Relative Frequency of Activity (a_i) for Groups Exposed to Task Relevant Stimuli

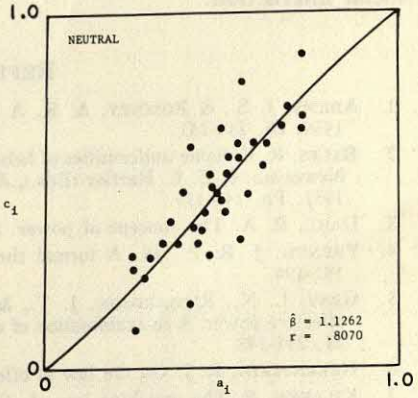

FIGURE 2

The Relationship Between the Relative Frequency of Compliance (c_i) and the Relative Frequency of Activity (c_i) for Groups Exposed to Stimuli Extraneous to the Task

D. Conclusions

It seems clear that a social version of the "Law of Effect" is operating in the type of experiment examined here. In the situation in which neutral stimuli were presented to groups, the relationship between the relative frequency of directive activity and the relative frequency of compliance approached the matching relationship; in the situation in which relevant stimuli were presented the relationship showed a substantial "S." This implies that a different set of reinforcement contingencies was operating in the two situations as a result of the discrimination training received by the groups exposed to relevant stimuli.

The extremity of the "S" shape of the curve (or the height of the value of *B*) indicates the extent to which discriminatory reinforcement altered the manner in which the persons complied, or failed to comply, with each other. The presence of stimuli relevant to the interactive situation increases the discriminatory process, but the presentation of extraneous stimuli dampens such a process.

It is clear that our formulation of the law of effect is adequate to describe the phenomenon studied here, whether or not extensive discrimination occurs. It remains to be seen, however, what sort of situations produce pronounced "S" bends in natural situations and whether extensive discrimination will be perpetuated over long time periods in situations of social interaction.

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PHYSICAL ATTRACTIVENESS AND THE ATTRIBUTION OF EPILEPSY*

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SUMMARY

One hundred college students (50 male and 50 female) identified the one person in a "lineup" whom they thought was an epileptic in a test of the hypothesis that they would be more likely to attribute neurological disorders to unattractive persons. Sixty-nine percent of the *S*s selected an unattractive female from the female lineup, and 83 percent selected an unattractive male from the male lineup. This relationship was not affected by the amount of time available in which to make the decision, or by those personal characteristics usually associated with human tolerance (i.e., empathy, self-esteem, previous acquaintance with an epileptic).

A. INTRODUCTION

Numerous studies have found a positive relationship between an individual's physical attractiveness and other qualitative attributions we are willing to make with regard to that person. Less attractive individuals have been viewed as having more negative personality traits (7, 11), as naughtier children after committing a rule violation (5), as less intelligent and less likely to enter college (3), and as a less liked computer date (16).

The stereotype seems fairly complete, at least in terms of its implications for the prediction of social interaction. Indeed, sociometric techniques generally have found unattractive children to be less popular (6). Thus far, however, the stereotype has been supported only with regard to social and personality inferences on the part of observers, those being areas in which most people have had considerable experience, and in which they commonly speculate. The present experiment was designed to determine

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[1] Reprint requests should be directed to the first author at the address shown at the end of this article.

whether *S*s would extend negative judgments to unattractive individuals in areas where they had no experience—i.e., the area of neurological disorder.

One group of persons who suffer from a nonobvious social stigma are those persons with the various neurological seizure disorders generally labelled epileptic. The hypothesis of the present experiment was that if asked to guess which of the persons in a "lineup" was the diagnosed epileptic, most individuals, in the absence of pertinent cues, would seize upon the attractiveness of persons in the lineup and select an unattractive target person.

B. Method

1. *Subjects*

One hundred college students (50 male and 50 female) participated in the experiment to earn extra credit in their general psychology class.

2. *Procedure*

a. The lineup. Twenty college students (10 male and 10 female, between the ages of 17 and 21) who were otherwise unconnected with the study served as independent raters in the selection of the lineup. The photographs of 100 male graduating seniors and 100 female graduating seniors from the yearbook of a high school in a distant city constituted the pool from which photographs would be selected for the lineup. Using the Thurstone method of equal appearing intervals, the 10 female raters rated the 100 male photographs on a 1-10 attractiveness continuum, where a score of 1 was most attractive and a score of 10 was least attractive (8). Similarly, the male raters rated the 100 female photographs on the basis of attractiveness. The mean attractiveness score and standard deviation were then calculated for each photograph and used as a basis for selecting 10 target persons for the female lineup and 10 persons for the male lineup. The mean scores were well distributed across the attractiveness continuum and it was possible to select 10 photographs for each lineup which were quite evenly distributed from a score of 2.70 to 9.90 in the female lineup and from a score of 1.80 to 9.50 in the male lineup.

The second criterion for selecting photographs for the lineup was that there be some agreement as to the attractiveness of the person in the photograph. Those photographs with the smallest standard deviations were given selection priority. In the male lineup no standard deviation exceeded 2.00, and in the female lineup no standard deviation exceeded 2.30. In

each lineup five photographs had attractiveness ratings of 1-5 (classified attractive) and five had attractiveness ratings of 6-10 (classified unattractive).

b. Time conditions. Recent research on the effects of time constraints on the quality of information processing (9, 13) suggested that time constraints on complex decision processes are associated with less effective or biased decision making. As the attractiveness-attraction phenomenon appears to be one of first impressions, time constraints were included in the experimental procedure as a possible mediating variable. One-half of the *S*s were given only one minute to select the epileptic from the lineup, while the remaining *S*s had a full five minutes to make their decision. A coin was flipped after each trial to determine the next *S*s time condition, with the only constraint being that half the *S*s be included in each time condition.

c. Selection procedure. The *S*s were given a standardized, written set of instructions in which they were informed that this was an applied psychology research project concerning the extent to which persons with epilepsy are able to conceal from others the fact that they have a neurological disorder. The relevance of such a study was emphasized in terms of the necessity for emergency medical personnel to be able to identify such persons in the event of an auto accident in which an unconscious victim requires immediate medication which may have a negative interaction with medication taken daily to control seizures. The *S*s were told that some medical personnel were quite successful in making such identifications, but were unable to explain how they did it.

The *S* was then informed that he would be shown two sets of 10 photographs, including one person in each set who had been diagnosed as having grand mal epilepsy. These instructions were intentionally deceptive, as the photographs had been preselected on the basis of attractiveness only. The *S* then closed his eyes while the first group of 10 photographs was placed before him (photographs were shuffled before each trial to randomize their location in the group, precluding an order effect). After the *S* made a selection, the procedure was repeated with the second set of photographs (thus *S*s made a same-sex selection and an opposite-sex selection).

d. Postexperimental questionnaire. Upon completion of the experimental procedure, *S*s were asked to complete a questionnaire which included a number of biographical and personality items which were considered to have a possible mediating effect upon their choice of an unattractive person as the epileptic.

(1). *Self-esteem.* *S*s exhibiting high self-esteem were expected to be less likely to attend to the negative traits of others and were hypothesized to be less likely to select an unattractive person as the epileptic. *S*s completed a brief form of the Coopersmith self-esteem scale (4) which was included in the questionnaire.

(2). *Empathy.* *S*s exhibiting high levels of empathic identification with the condition and welfare of others were expected to be less likely to attribute negative traits to unattractive persons. The Sherman and Stotland Fantasy-Empathy scale (15) was thus included in the postexperimental questionnaire.

(3). *Perceived similarity to target person.* *S*s were asked in the questionnaire to describe the person they selected from each lineup with the use of a semantic differential scale consisting of 13 bipolar adjective scales (pleasant-unpleasant, warm-cold, hostile-cooperative, etc.). Then they were asked to rate on an eight-point scale how similar they felt their same-sex choice was to themselves in terms of those same adjectives. As previous research has found a positive relationship between perceived similarity of personality and interpersonal attraction (1, 2), less attractive target persons were expected to be perceived as less similar.

(4). *Personal relationship with an epileptic.* *S*s who had known an epileptic personally were expected to have a more accurate understanding of epilepsy, and be less dependent upon the stereotype. Such persons were expected to be less likely to select an unattractive target person as the epileptic.

(5). *Birth order.* Persons who are firstborn or only children generally have been found to be more dependent and conforming in social situations (17). They were expected, therefore, to be more dependent upon the predominant social stereotype concerning attractiveness, personality, and social characteristics, thus more likely to select an unattractive person as the epileptic.

The final item on the questionnaire was an open-ended question as to why the *S* chose the target person he did. Upon completion of the questionnaire, *S*s were carefully debriefed as to the true nature of the experiment and the rationale for the intentionally misleading instructions they had been given. All *S*s agreed not to discuss the study with anyone until after its completion.

C. Results

The lineups by design contained 10 photographs quite evenly distributed along the continuum of attractiveness, with one half the persons in each lineup having an attractiveness rating of five or less (classified attractive) and half having an attractiveness rating greater than five (classified unattractive). If an *S* chose a person with an attractiveness rating of five or less he was considered to have selected an attractive target person. If he chose a person with an attractiveness rating greater than five he was considered to have chosen an unattractive person.

Upon inspection the distribution of attractive-unattractive choices in the one-minute time condition was found to be nearly identical to the distribution of such choices in the five-minute time condition. The data were collapsed, therefore, across time conditions. The data were analyzed separately, however, with regard to sex of target persons, as all 100 *S*s made a selection from both the male lineup and the female lineup. *S*s selected an unattractive female as the epileptic in 69 out of 100 trials ($\chi^2 = 14.44$, $df = 1$, $p < .0001$). *S*s selected an unattractive male in 83 out of 100 trials ($\chi^2 = 43.56$, $df = 1$, $p < .0001$). The sex of the target person was also an important factor. A 2×2 analysis of variance was performed to determine the effect of sex of target person and sex of *S* on the attractiveness of the target person chosen. Male target persons were less attractive than female target persons ($F = 4.91$, $df = 1/196$, $p < .05$). There was no main effect of sex of *S* and no significant interaction. Mean attractiveness scores of persons selected as the epileptic as a function of sex of target and sex of *S* are as follows: male *S*/male target, $\overline{X} = 7.46$; male *S*/female target, $\overline{X} = 6.62$; female *S*/male target, $\overline{X} = 7.50$; and female *S*/female target, $\overline{X} = 6.76$ (where 1 = most attractive and 10 = least attractive).

Further analyses found no significant effects of *S*s' birth order, empathy scores, level of self-esteem, or personal acquaintance with an epileptic on the attractiveness of the person chosen as the epileptic. However, a 2×2 analysis of variance of the effects of self-esteem and perceived similarity to the same-sex target person chosen as the epileptic produced a significant effect of perceived similarity on attractiveness of choice, with choices who were perceived as dissimilar being the more unattractive persons in the lineup ($F = 15.61$, $df = 1/96$, $p < .01$). The mean attractiveness ratings of target choice as a function of an *S*'s self-esteem and perceived similarity are as follows: high self-esteem/high similarity, $\overline{X} = 6.53$, $N = 19$; high self-esteem/low similarity, $\overline{X} = 8.13$, $N = 32$; low self-esteem/high similar-

ity, $\overline{X} = 5.26$, $N = 19$; and low self-esteem/low similarity, $\overline{X} = 7.57$, $N = 30$.

D. Discussion

The primary hypothesis was strongly supported, as *S*s seemed quite willing under the circumstances to attribute even vague, neurological disorders to unattractive persons. Sixty-nine percent selected an unattractive female as the epileptic and 83 percent chose an unattractive male. The amount of time available in which to make the decision was not a significant variable, providing some support for the notion that the attractiveness-attraction phenomenon is a matter of somewhat unsophisticated, first impressions. Personality characteristics associated with greater human tolerance (empathy, self-esteem, birth order), and a previous, personal acquaintance with an epileptic also failed to mediate the relationship. An important sidelight, however, was that *S*s who chose an unattractive person as the epileptic perceived that person as dissimilar to themselves on a series of important personality characteristics. This finding is consistent with earlier findings (12) of positive correlations between ratings of a target person's attractiveness and perceived similarity of that person's personality to self. Apparently it was not difficult, in the absence of pertinent cues, to draw upon the stereotype and attribute one further malady (epilepsy) to unattractive persons. Although it has been shown consistently that unattractive persons are judged as possessing less desirable personal traits and as being capable of considerable antisocial behavior, the ease with which *S*s leaped into relating attractiveness and epilepsy is dramatic. *S*s who chose only very unattractive persons (attractiveness ratings of 8, 9, or 10) were quick to call forth quite reasonable sounding rationalizations for their choices: e.g., (*a*) "I'm in Special Education and I've been around a lot of people with these seizures, some of whom are perfectly normal." (*b*) "Both of them looked not quite as well as the others. Like they had known times of serious illness." (*c*) "The guy looked somewhat disturbed, perhaps something was bothering him. The girl looked like she was a very closed person, didn't associate with others much." (*d*) "Both photos seemed to display a degree of alienation or distance, which I think exemplifies this kind of disorder." (*e*) "Out of their respective groups they seemed to have a lack of personal interest which I equated to their seizure problem." (*f*) "Girl looked frightened and confused. Boy looked disturbed and unhappy." (*g*) "Photos seemed to be distant—withdrawn people—people who were very introspective and unhappy." (*h*) "The person seemed guarded and interior, in my

one experience with an epileptic the person acted in this manner." (*i*) "The two photos struck me as being different from the rest. The guy seemed withdrawn and hostile, whereas the girl, though friendly, did not seem to fit in with the others. I may have been quite prejudiced in picking the girl; I'm ashamed of, but recognize my prejudice against fat people."

There is of course another, more pressing implication of the attractiveness-epilepsy relationship in the present findings. Such data simply confirm assertions of stereotyping and blatant prejudice against the wide variety of persons so afflicted. In a near vacuum of knowledge among the general population about the various disorders which fall under the label epilepsy, epileptics have encountered fear, job discrimination, and such formal obstacles as laws preventing marriage, or at least requiring sterilization prior to marriage, laws prohibiting the issuance of a driver's license (in the absence of pertinent accident statistics), and in the case of several countries, even the prohibition of immigration (14). It is not difficult to understand the failure of some epileptics to disclose their medical history completely to friends and acquaintances, much less to potential employers, auto insurance companies, or auto license bureaus (10).

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THE VALIDITY OF CHARLES REICH'S TYPOLOGY OF "CONSCIOUSNESS" IN MODERN SOCIETY*[1,2]

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SUMMARY

Charles Reich in *The Greening of America* has proposed a typology of life style or "consciousness." This typology is the structure around which he builds his theory of social change. In this research, Reich's typology has been operationalized and tested empirically on 702 Australian 15- to 20-year-olds with the use of image analysis. Little underlying structure was found among the variables which Reich claimed would distinguish his three types of consciousness. The only similarity between what empirically derived structure did emerge and Reich's hypothesized structure was the presence in both of a radicalism dimension.

A. INTRODUCTION

Few books in recent years have had as great an impact on English speaking societies as Charle Reich's best-seller, *The Greening of America*. The essence of Reich's thesis is that the so-called counterculture of the younger generation will change the whole American social structure and lead America into a new utopia. At the root of this revolution from within is what Reich describes as change in consciousness. The aim of this paper is to test empirically the typology of consciousness upon which Reich's whole theory is based.

Reich listed a large number of characteristics which set apart three types of persons—Consciousness I, II, and III persons. Briefly, Consciousness I is the competitive individualist, Consciousness II is the conforming organi-

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[2] Reprints are available from the fourth author at the address shown at the end of this article.

zation man, and Consciousness III is the "liberated" long-haired, noncompetitive radical who can see through the myths of society.

The theory starts with the proposition that technological changes in Amerian society resulted in a shift from the dominance of Consciousness I in the eighteenth century to the dominance of Consciousness II in the first half of this century. In the past decade as a result of further technological changes the American people have begun to shift to Consciousness III. This new consciousness is changing the social structure in such a way that when it is finished America will be a "beautiful" society full of "beautiful" people. However, at this stage only a few have changed to Consciousness III, and many are still lagging behind at Consciousnes I.

Reich argues that Consciousness I is the consciousness which was most adaptive for the frontier society of the eighteenth century. Self-reliance, independence, and competitiveness were needed to win the West and run the industrial revolution. However, in the industrialized organizational society of the first half of this century the adaptive consciousness became the organization man type II. As the final stage, in the second half of this century, the organizational state is changing from being the servant of man into a soul-destroying monster which is creating powerlessness, corruption, and absence of community. So the consciousness which fits in with this industrialized technocratic society (number II) is no longer adaptive. Consciousness III which rejects uncontrolled technology, which replaces organizational values with community values, is now the adaptive consciousness.

Reich's theory has been widely criticized because it assumes that man automatically adopts the consciousness which is most adaptive to his circumstances. There is also the thorny question of what "adaptive" means. Nevertheless our attack of Reich's theory is different. We look at the question of whether Reich's typology of consciousness (I, II, & III) does exist in the real world. Since the validity of Reich's theory depends upon the validity of his typology, an answer in the negative to the above question would detroy the theory.

The empirical test of Reich's typology is on a sample of urban Australians. Although Reich's typology was originally construed with reference to American society, the mass media have so acclaimed its relevance for all Western societies that a test of its empirical validity in an Australian context is in order. Even the dust cover of the British edition of *The Greening of America* proclaims . . . "What he says is equally relevant for Britain." These same generalized claims for the relevance of Reich's work have been made in Australia.

Winch (13) was the first to argue that typologies should be tested empirically. He distinguished between heuristic and empirical typologies, the former permitting a voluntary distortion of empirical phenomena by positing extreme forms of relevant characteristics while the latter seek homogeneities in heterogeneous phenomena. Winch's heuristic typology is of course very similar to Weber's "ideal type" [see Hoult (5)]. Winch argued that if a typology is not heuristic, then its validity should be tested empirically. Reich's (8) typology is clearly an attempt to mirror reality and not a voluntary exaggeration of characteristics for analytical advantage and, as such, can be subjected to empirical testing either by a factor analytic procedure as suggested by Winch or by some classification method. (2)

A point of some ambiguity in Reich's model is that at times he uses Consciousness I, II, and III to represent clusters of attitudes, behaviors, beliefs, and values, while at other times the types describe classes of people. From a careful analysis of the book, one can only conclude that Reich is concerned both with belief structures and types of people.

In the event of an empirical test of the typology, these two structures are logically very different. For example, while a multivariate analysis may show that one dimension underlie a particular sample of test items, these same items may be used as a basis for finding several clusters of people. Thus in order to rest Reich's typology by means of a multivariate procedure, it is necessary to formulate the following two hypotheses:

1. The belief statements representing each type of consciousness will "hang together" and form three dimensions which are independent or orthogonal to each other.

2. On the basis of persons' scores on test items, three clusters of people should be found, each cluster endorsing items which correspond to one of Reich's types of consciousness.

In this study, only Hypothesis I will be tested, since the computing costs of a suitable technique of analysis for Hypothesis II were prohibitive. Numerical taxonomy would have been the most appropriate procedure to use to test Hypothesis II.

B. Method

1. *Operationalizing the Typology*

The typology was operationalized by 24 belief and attitude statements with which respondents were asked to express their degree of agreement or disagreement. The items were arrived at through an exhaustive search of *The Greening of America*. They are listed in Table 1 under the type of consciousness they represent.

TABLE 1
FACTOR LOADINGS FOR THE FIRST THREE ROTATED FACTORS

Items for *The Greening of America* (8)	Factor I (cultural radicalism	Factor II (apathetic acquiescence with status quo)	Factor III (perception of society as sick
Consciousness I			
1. Individual effort and hard work are what all people should strive for (p. 25)	−.30	.05	−.13
2. It is only natural and right that life should be based on competition against other people(p. 2)	−.11	.17	−.09
3. Nature must be conquered and put to use	−.02	.28	−.08
4. What is needed in this country is a return to stronger moral code (p. 28)	−.27	.12	−.01
5. Money is the road to happiness (p. 28)	.00	.25	.02
Consciousness II			
6. Politics don't interest me (p. 68)	−.02	.31	−.09
7. Getting ahead in my chosen career is one of the main aims of my life (p. 60)	−.29	.15	−.18
8. It is best to have a good time now rather than plan and work for the future (p. 61)	.27	.16	.11
9. Unless you learn how to get on in organizations you will never have a good life (p. 56)	−.14	.24	−.11
10. One must adjust oneself to the needs of organizations to which one belongs (p. 59)	−.18	.07	−.16
11. You should not allow yourself to become just another cog in the industrial machine (p. 190)	.08	−.26	.05
12. Our social problems can be solved by reform and government action, not by revolution (p. 64)	−.15	−.01	−.10
13. Examinations tell you how well you are succeeding in life (p. 67)	−.18	.33	−.08
14. It is right that the people who contribute most to society should receive the biggest pay packet (p. 66)	−.11	.08	−.04
Consciousness III			
15. There is a great need for social and political action to change society	.12	−.20	.21
16. I am strongly opposed to Australia continuing to participate in any way in the Vietnam war[a] (pp. 193-194)	.17	−.14	.17
17. There is nothing wrong with males having long hair (p. 189)	.26	−.14	.01
18. Marijuana or pot should be legalized (p. 218)	.36	−.13	.15
19. I don't like going to a restaurant where it it necessary to dress up (p. 199)	.16	.12	.19
20. Most jobs in our society are meaningless and not really satisfying (p. 204)	.21	−.05	.34

TABLE 1 (*Continued*)

Items from *The Greening of America* (8)	Factor I (cultural radicalism)	Factor II (apathetic acquiescence with status quo)	Factor III (perception of society as sick)
21. Australian society is ugly and artificial (pp. 193-194)	.13	−.11	.44
22. I think that I would like to live in a hippy-style commune (p. 212)	.37	−.08	.24
23. Australian society is very unjust to its poor and its minorities like Aborigines (pp. 194-194)	.11	−.18	.26
24. Australian society is untruthful and hypocritical (pp. 193-194)	.05	−.11	.45

[a] "America" has been replaced by "Australia" in items 16, 21, 23, and 26 for obvious reasons; similarly "Negroes" has been replaced by "Aborigines" in item 23.

Responses to the items were obtained in an interview situation in which a trained interviewer read out items and the *S* was asked to respond in one of the following categories: "strongly agree," "agree," "disagree," and "strongly disagree." If the *S* could not make up his mind, he was permitted to use an "uncertain" category.

2. *The Sample*

Since Reich argues that Consciousness III is only to be found in significant numbers among young people, an adequate test of the typology required a sample of young people. Thus the sample was comprised of 702 persons between the ages of 15 and 20 years in the Brisbane metropolitan area. Respondents were selected by randomized multiphase sampling procedures. First, 30 of the 51 geographical areas which make up the Brisbane metropolitan area were sampled, with areas with larger numbers of 15 to 20-year-olds having a proportionately larger chance of being sampled. Smaller geographical areas within the areas were then sampled in the same way. Finally streets within these areas were chosen by simple random sampling. Interviews were conducted in 1972 at randomly selected houses in these streets, with interviewers being required to call back until an interview was obtained with each person thus sampled.

3. *Method of Analysis*

The method of analysis chosen to test Hypothesis I was image analysis. Like factor analysis, this procedure reduces a set of variables represented in n-dimensional space to a smaller set of new, uncorrelated dimensions

which are defined solely in terms of the original variables. However, image analysis has an important advantage over factor analysis, or more specifically principal component analysis, in that the latter method is based on the assumption that all of the variation contained in the correlation matrix is worthy of consideration in deriving factor dimensions. Guttman's image analysis, on the other hand, partials out the variation in the raw data which is unique to individual variables, and bases its analysis on the parts of the variance of the variables which can be said to be common or shared with the remaining observable variables (4). In the present study, each type of consciousness was represented by five or more items, and it is thus the common variance rather than the unique variance of the items which is of primary interest. Image analysis is therefore particularly suited to this research problem.

For n observable standardized variables Z_j, Guttman considers for each of these its linear least squares predicted value p_j as determined by the remaining n-tests. Guttman defines the random variable p_j as the image of the test j, while that part of Z_j which is not predictable from a knowledge of the scores on the remaining tests is called the anti-image of test j. Image theory explores the properties of the set of all n images simultaneously. To study simultaneously the interrelationships of the images requires finding the image covariance matrix G. It is from this matrix that the eigen roots and vectors are extracted in image analysis, unlike principal component analysis for which the intercorrelation matrix R is the starting point. However, the G matrix is defined solely in terms of the R matrix. To obtain the image covariance matrix G, the whole correlation matrix R is deflated. The diagonal elements become the squared multiple correlations attained by predicting each variable from all other variables in the set and the off-diagonal elements are also adjusted to reflect only common covariation. The total computational procedure is outlined by Veldman (12).

C. Results and Discussion

In converting the R matrix to the G matrix, the amount of common variance of each variable with all other variables is computed. The amount of shared variance for each variable was found to be very low, ranging from 5.72% to 30.14%. The percentage of total variation which was common to the variable was 14.89%. These results suggest that there is very little consistency of response or structure underlying the variables being studied.

Only the first of the 15 factors extracted[3] had an eigen value greater than 1.0, and this factor accounted for 49% of the total common variance. The next four factors accounted for 12%, 8%, 6%, and 5% of common variance, while each of the remaining factors accounted for only 3% or less. These results further support the above conclusion that there is little consistency of response which would make variables hang together according to some underlying structure.

In order to give Reich's typology a further chance of receiving some support, the first three factors were rotated to simple structure by a varimax rotation. In view of the low eigen values obtained, this procedure would not normally be regarded as worthwhile; however, it was carried out so that there could be no criticism that the typology was not given every chance of receiving support.

The rotated factors were in fact more sociologically meaningful than the unrotated factors. Even though none of the factor loadings exceeded .45, the factors were nevertheless identified and compared with those predicted by Reich's typology (see Table 1).

The variables loading most heavily on Factor I suggested that this was a cultural radicalism dimension and as such held some resemblance to Reich's Consciousness III. However, it is hardly surprising to isolate a radicalism dimension such as this in a pool of social attitude items (1, 3, 9, 10, 11). To further investigate the correspondence between this factor and Reich's typology, the variables with factor loadings greater than 2.5 or less than −2.5 were labelled according to the type of consciousness which they reflected. It was found that Factor I had three Consciousness III items loading positively, along with one item which, according to Reich, should have loaded negatively on a Consciousness II factor. Loading negatively on Factor I were two Consciousness I items and one Consciousness II item. Factor II on the other hand was difficult to interpret. If anything, it could be described as apathetic acquiescence with the status quo. However, it was noted that a number of markedly skewed variables loaded heavily on this factor. Thus, it may be that this dimension emerged as a result of skewdness for some items in the data. By the use of the same criteria as for Factor I it was found that two Consciousness I items and two Consciousness II items loaded positively on Factor II, while another Consciousness II item loaded negatively on this factor.

[3] Kaiser (6) has suggested extracting a number of factors equal to half the number of original variables. For the purpose of this study, 15 factors were therefore extracted.

Finally, Factor III was identified as a "sick" society dimension, measuring one's perception of the degree to which society could be described as "sick." Although the four items loading heavily on this factor are all Consciousness III items, this dimension clearly bears little resemblance to Reich's conception of Consciousness III.

The emergence of two independent radicalism dimensions (cultural radicalism and perception of society as sick) bears considerable resemblance to Keniston's (7) distinction between the culturally alienated and the radical activist. Keniston argued that the culturally alienated or hippie types are quite distinct from the radical activist type. The culturally alienated perceives the activist as uptight and uncool, and the activist perceives the culturally alienated as apathetic and immoral. Keniston's typology merits further testing.

D. Conclusion

In summary, the analysis showed that there was little structure underlying the variables representative of Reich's three types of consciousness. Moreover, it has also been shown that what little structure there is in the variable bears little resemblance to the structure proposed by Reich.

It could be said in defense of Reich's typology that the way in which its characteristics were operationalized was inappropriate; or alternatively, that Reich's typology cannot be measured by survey techniques. As the items used to operationalize Reich's typology were taken directly from Reich's own writing, the former defense could hardly be put forward. The latter defense seems tantamount to contending the Reich's typology is untestable, since an alternative strategy to a multivariate analysis of survey data for testing such a typology is yet to be put forward.

Thus Reich's theory must be regarded as having limited value, since the structure of consciousness which forms its premise is not to be found in the real world.

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BODY-CATHEXIS AND SELF-ESTEEM: A REANALYSIS OF THE DIFFERENTIAL CONTRIBUTION OF SPECIFIC BODY ASPECTS*

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SUMMARY

In attempting to specify precisely the relationship between body-cathexis and self-esteem, research has frequently been directed toward the question of the differential contribution of cathexis for specific body aspects. Current conclusions in this area are based upon erroneous data analysis procedures and are thus suspect. A sample of 98 males and 129 females enrolled in sociology courses responded to a standard self-esteem instrument in addition to a body-cathexis questionnaire. The differential contribution of cathexis for specific body aspects to self-esteem was examined with the use of a stepwise regression procedure. The results indicate that body aspects previously considered most important to self-esteem are largely a function of the failure of previous studies to examine the role of suppressor variables. Further, body aspects stereotypically considered important contribute minimally to self-esteem level, and the total proportion of variance in self-esteem accounted for by body-cathexis is contributed by a small number of body aspects.

A. INTRODUCTION

The relationship between satisfaction with one's overall physical characteristics (body-cathexis) and satisfaction with self has drawn frequent attention. Beginning with Secord and Jourard (9), followed by the Rosen and Ross (7) replication, and several more recent studies (1, 5, 6), a positive correlation has been reported between body-cathexis and self-esteem. Until recently (1, 5), research in this area has dealt only with the relationship between overall body-cathexis (the mean satisfaction score for n body aspects) and self-esteem. As Lerner *et al.* (5, p. 120) point out, ". . . it would be important to consider not only the overall relation between

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body-attitudes and self-concept, but also the relative contribution of selected aspects of the body in determining self-concept." To examine this more detailed question, Lerner *et al.* separately correlated the cathexis scores for each of a number of body aspects with self-concept scores for male and female college students. On the basis of the obtained zero order correlations (*r*), body aspects were categorized as highly, moderately, and not correlated with self-concept. Examination of these zero order correlations led the authors to conclude that ". . . for both sexes satisfaction with different body parts is differentially related to self-concept" (5, p. 126). It was further concluded that body aspects significantly correlated with self-concept were generally the same for both sexes.

Berscheid *et al.* (1) examined data from a much larger and older noncollege student population in addressing the question of specific body aspects and self-esteem. With the use of a percentage and cross-tabulation analysis, it was concluded that ". . . for both sexes, face makes the difference" [in self-esteem level (1, p. 126)].

Even though these two studies deal with the next logical step in examining the relationship between body-cathexis and self-esteem, both studies draw conclusions not warranted by the data analysis techniques utilized. In the Lerner *et al.* (5) analysis, the conclusion that specific body aspects are differentially related to self-concept, and hence have differential contributions to self-concept, is based on the examination of the zero order correlation coefficients for the relationship between cathexis for each aspect and self-concept.[1] If, however, satisfaction with body aspects is intercorrelated between various body aspects, it is impossible to ascertain the relative contribution of any given body aspect of self-concept by use of the zero order correlation coefficients alone. Since it is reasonable to assume that the perception of body aspects takes on some gestalt characteristics, intercorrelation is quite possible.

The appropriate analysis procedure for dealing with the question of differential contribution is that of multiple stepwise regression. The purpose of the research reported here was to address the question of the differential contribution of cathexis for specific body aspects to self-esteem with the use of the appropriate form of data analysis.

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[1] The Berscheid *et al.* analysis will not be dealt with in detail, since it is obvious that the question of differential contribution of given independent variables to explaining variance in a dependent variable cannot be approached by a percentage and nonpartialling cross-tabulation procedure.

B. Method

Ss consisted of 103 male and 136 female volunteers enrolled in two upper-division sociology courses. As a result of incomplete response to one or more items, the final sample consists of 98 males and 129 females.

All *Ss* completed a standard body-cathexis questionnaire which contained a list of 23 body aspects for males and 21 for females on separate male and female forms. *Ss* rated their degree of satisfaction with each listed body aspect on a seven-point rating scale. This rating comprised the cathexis score for that aspect, and the mean rating over all listed aspects was the mean body-cathexis score. The dependent variable of self-esteem was measured with the Rosenberg (8) Self-Esteem Scale by a summated scoring method. All responses were anonymous and obtained in respective classrooms.

C. Results

Lerner *et al.* (5, p. 124) reported correlations of $r = .33$ for males and $r = .43$ for females between mean body-cathexis and self-concept (level of self-evaluation). The respective correlations in the present data are .45 and .37, further confirming the positive correlation between mean body-cathexis and self-esteem.

In examining the relationship between body-cathexis and self-esteem by specific body aspects, it is of value to note first the comparison between the separate zero order correlations obtained in the Lerner *et al.* (5) study and the present investigation.[2] As shown in Table 1, the correlations for most body aspects are very similar between the two sets of data, particularly in the male case. Closer examination of Table 1 would suggest that the variable which contributes the most to self-esteem is general appearance or overall physical attractiveness in the case of both sexes. Examining specific body aspects, there is a clear tendency for facial features and "major" body aspects to contribute the most to self-esteem in both studies, an observation supportive of the conclusions of Berscheid *et al.* (1, p. 126) that for both sexes, face is the most important body aspect with regard to self-esteem and that "for males, the body part that had the second strongest impact on self-esteem is the chest; for females, the second most important factor was the mid-torso area, reflecting their worry about weight."

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[2] It should be clearly noted that the Pearsonian correlation coefficients from the two studies are not directly comparable in terms of the magnitude of the relationship, since the value of r is dependent upon the variance present in the variables.

TABLE 1
COMPARISON OF LERNER'S AND THIS STUDY'S ZERO ORDER CORRELATIONS BETWEEN CATHEXIS FOR BODY PARTS AND SELF-EVALUATION

Males			Females		
Body part	Col*. 1	Col. 2	Body part	Col. 1	Col. 2
Facial complexion	.36	—	Body build	.42	—
Hair texture	.30	—	General appearance	.39	.46[b]
Nose	.28	.32	Profile	.30	—
Face	.27	.38	Hips	.30	.19
Leg shape	.27	.31	Thighs	.28	.05
Weight distribution	.26	.08[a]	Ankles	.27	—
Body build	.26	—	Face	.26	.41
Waist	.25	.21	Weight distribution	.26	.11[a]
Teeth	.25	.35	Chest	.25	.19[e]
Thighs	.24	.24	Waist	.23	.19
General appearance	.22	.38[b]	Eyes	.23	.19
Profile	.21	—	Hair color	.22	.35
Mouth	.21	.21[c]	Chin	.21	—
Shoulder width	.19	.19	Height	.21	.26
Neck	.18	.17	Facial complexion	.21	—
Eyes	.20	.19	Nose	.18	.17
Hair color	.20	.25	Shoulder width	.16	.11
Hips	.16	.25	Ears	.16	—
Chest	.15	.38[d]	Leg shape	.17	.18
Arms	.11	—	Arms	.11	—
Chin	.09	—	Mouth	.11	.28[c]
Ears	.04	—	Neck	.13	.07
Ankles	.04	—	Teeth	.10	.34
Height	.00	.15	Hair texture	.04	—
Bicep	—	.31	Hands	—	.15
Leg length	—	.29	Knees	—	.18
Voice	—	.51	Leg length	—	.18
Calves	—	.21	Calves	—	.29
Hands	—	.25	Voice	—	.32
Knees	—	.24			
Feet	—	.19			

Note: Column 1 for both males and females was taken from Lerner *et al.* (5, p. 125), and was reprinted with Dr. Lerner's permission.

Where parts were similar bot not the same they are noted as follows: (*a*) = weight, (*b*) = overall physical attractiveness, (*c*) = lips, (*d*) = chest circumference, (*e*) = bust.

* Column 1 = Lerner Correlations, Column 2 = Correlations obtained in this analysis.

However, if the data from which the zero order correlations in columns 2 and 4 of Table 1 were produced are examined by using a stepwise regression procedure, the results are substantially different from those on which the above conclusions are based. In this procedure, a beta coefficient and a zero order correlation coefficient are derived from the correlation between cathexis for each body aspect and self-esteem. Since $\beta_{12} \cdot r_{12} + \beta_{13} \cdot r_{13} \ldots = R^2$, then, $\beta_{xy} \cdot r_{xy}$ = beta weight$_{xy}$; this beta weight being the relative proportion of variance in the dependent variable (self-esteem)

TABLE 2
BETA WEIGHTS FOR CATHEXIS OF INDIVIDUAL BODY ASPECTS AGAINST SELF-ESTEEM, BY SEX

Body aspect	Males			Females		
	Beta coefficient	r_{xy}	Beta weight	Beta coefficient	r_{xy}	Beta weight
Voice	.527	.507	.267	.059	.321	.019
Chest	.273	.379	.103	—	—	—
Nose	.222	.318	.071	−.005	.174	−.001
Leg shape	.223	.305	.068	−.038	.177	−.007
Teeth	.182	.347	.063	.187	.341	.064
Thighs	.259	.239	.062	−.125	.054	−.007
Waist	.146	.213	.031	.019	.192	.004
Hair	.111	.251	.028	.123	.346	.043
Face	.041	.383	.016	−.003	.412	−.001
Neck	.077	.173	.013	−.159	.072	−.011
Height	−.028	.152	−.004	.092	.261	.024
Hips	−.060	.231	−.014	.189	.191	.036
Weight	−.178	.079	−.014	−.111	.111	−.012
Lips	−.197	.212	−.042	.052	.297	.015
Feet	−.063	.195	−.012	.008	.107	.001
Calves	−.303	.207	−.063	.187	.258	.048
Hands	−.139	.249	−.035	−.015	.145	−.002
Bicep	−.062	.317	−.020	—	—	—
Eyes	−.059	.191	−.011	−.005	.174	−.001
Knees	−.063	.236	−.015	−.045	.177	−.008
OPA[a]	−.123	.376	−.046	.320	.459	.147
Shoulders[b]	−.103	.265	−.027	—	—	—
Leg length	−.026	.293	−.008	−.055	.178	−.010
Bust	—	—	—	.037	.195	.007

[a] OPA = Overall Physical Attractiveness.
[b] Shoulder Width.

accounted for by cathexis for each of the independent variables (cathexis for each body aspect) comprising the given set. These beta weight values are presented in columns 3 and 6 of Table 2. Examination of them leads to entirely different conclusions regarding the "effect" of cathexis for specific body aspects on self-esteem. For males and females, respectively, R^2 = .412 and .348. More importantly, 13 of the 23 male body aspects and 10 of the 21 female body aspects are actually negative suppressor variables (2, 3). These variables derive some proportion of their zero order coefficients by sharing more variance with one or more other independent variables which *are* correlated with self-esteem than that shared with the dependent variable of self-esteem itself. Since negative suppressors generally share a much greater proportion of common variance with other independent variables than that shared with the dependent variable, they can be eliminated from the regression analysis without significantly affecting the value of R^2. When the attempt, as is the case here, is to isolate a subset of variables that

actually contribute to explaining variance in the dependent variable, negative suppressors should be eliminated from the regression equation if the deletion results in no significant reduction in the value of R^2. Since, as any variable is deleted from the initial set, the beta coefficients for any or all remaining variables in the set may change in both sign and magnitude, thus changing the respective beta weights, the regression procedure should be repeated until all negative suppressors are deleted if such deletion procedure results in no significant reduction in the final value of R^2, as compared to the original variable set R^2.

The above analysis was performed by making several forward stepwise regression runs on the 23 male and 21 female body aspects against the dependent variable of self-esteem. The results of this procedure are presented in Table 3, where R^2 = .33 and .30 for males and females, respectively. Neither of these values is significantly different from the original full variable set value ($F < 1$ in both cases). The data in Table 3 indicate that for males only six of the original 23 body aspects actually account for variance in self-esteem. For females, only seven of the original 21 body aspects remain. For males, that body aspect which contributes the most to explaining variance in self-esteem is voice, followed by chest and facial features; the latter having only minimal beta weights. For females, overall physical attractiveness is the aspect which accounts for the most variance in self-esteem with voice, calves, height, and hips minimally contributing.

TABLE 3
FINAL BETA WEIGHTS FOR MALE AND FEMALE BODY ASPECTS AFTER DELETION OF ALL NEGATIVE SUPPRESSOR VARIABLES

Body aspects	r	Beta coefficient	Beta weight
	Males		
Voice	.341	.507	.173
Chest circumference	.174	.379	.066
Teeth	.106	.347	.037
Nose	.063	.318	.020
Leg shape	.067	.305	.020
Facial features	.035	.383	.013
	Females		
Overall physical attractiveness	.275	.459	.126
Teeth	.202	.341	.069
Hair color	.130	.345	.045
Voice	.097	.321	.031
Calves	.055	.258	.014
Height	.046	.361	.012
Hips	.035	.191	.007

A note of caution is needed. Even though the beta weights presented in Table 3 indicate the *relative* contribution of each remaining body aspect in accounting for variance in self-esteem, they cannot be interpreted as indicating the exact proportion of variance accounted for by cathexis for that body aspect alone. This is the case, since these remaining body aspects may be positive suppressors (2); in which case these body aspects are still intercorrelated to some extent, yet share more common variance with the dependent variable of self-esteem than that shared with one or more other body aspects.[3]

D. Discussion

With regard to American college students these data further confirm the previously established positive correlation between mean body-cathexis and self-esteem. More importantly, however, these data indicate the relative contribution of cathexis for specific body aspects to self-esteem level. In this regard, the conclusions of previous research are somewhat in error. First, the conclusion of Lerner *et al.* (5) that body aspects which contribute to self-esteem are generally the same for both sexes is seriously questioned. Even though the zero order correlation coefficients in the present data quite closely replicate those obtained by Lerner, the results of the appropriate regression analysis indicate clearly that different body aspects contribute to explaining variance in self-esteem for males and females. Secondly, the importance of facial aspects, and face in general, as concluded by Berscheid *et al.* (1) and suggested by the Lerner data, is clearly not supported. These data indicate that the maximum proportion of variance in self-esteem that facial aspects could account for, given the same set of body aspects as those examined here, is .013 for males and zero for females.

These data further indicate that female body aspects generally thought to be important to self-image are not important to self-esteem (e.g., bust, waist, weight). Even though females may be dissatisfied with these body aspects to the point of desiring to be different on these dimensions (4, 10), the degree of satisfaction appears irrelevant to self-esteem. This is also the case for males with the absence of height and weight.

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[3] The problem of ascertaining which variables are positive suppressors will not be dealt with here, since the nature of the proper procedures for this type of analysis are still heavily debated (2).

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EXPLORATIONS IN THE DRIVE THEORY OF SOCIAL FACILITATION*[1]

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SUMMARY

It was hypothesized (Experiment I) that the mere presence of an observer would facilitate performance on simple mazes and hinder performance on complex mazes, especially when the observer was unfamiliar to the *S*. A second study (Experiment II), addressed the apparent paradox between Zajonc's drive theory of social facilitation and generalizations stemming from Schachter's work on affiliation (the first indicating that the presence of others is arousing, the second suggesting that the presence of others is calming). The first study, which included 30 male undergraduate *S*s and a female observer, supported Zajonc's hypothesis; the interaction between observer conditions (alone, familiar observer, unfamiliar observer) and maze complexity (simple, complex) was significant ($p < .025$). The second study, which included 64 male undergraduate *S*s and a male observer, also supported Zajonc's hypothesis; the interaction between drive conditions (low fear, alone; high fear, alone; high fear, calm observer; high fear, worried observer) and maze complexity was significant ($p < .025$). In line with Schachter's work, the results indicated that social comparison and modelling processes can alter the size of social facilitation effects.

A. INTRODUCTION

The simplest paradigm in experimental social psychology involves one person behaving in the passive presence of another. Although several studies indicate that the effect on task behavior of the mere presence of another person is sometimes beneficial and sometimes debilitating, early emphasis on the beneficial effects resulted in widespread acceptance of the

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term "social facilitation" (20, 21). The apparently contradictory findings of previous research on social facilitation, indicating that performance is sometimes enhanced and sometimes hindered by the presence of an observer, were reconciled by Zajonc's (20) well known hypothesis that the mere presence of another person arouses generalized drive. Since generalized drive, as conceived by Hull-Spence theorists (18), energizes all response tendencies, the mere presence of another person, like other sources of drive (e.g., fear and deprivation), should enhance the emission of dominant responses. A corollary of this proposition is that performance on simple tasks should be facilitated, while performance on complex tasks should be impaired by the presence of an observer, since complex tasks require novel or low-probability responses.

Zajonc's paper has inspired a great deal of research [comprehensively reviewed by Cottrell (4)], most of it supporting the drive theory of social facilitation. The theory has been criticized, however, for its reliance on the notion of "mere presence," which seems to imply that the meaning or significance of an observer is irrelevant to an *S*. Several recent studies have suggested that social facilitation effects are due primarily to *S*s' concern about being evaluated by an observer, and some writers have argued persuasively against the concept of "mere presence." It is not clear whether the arousal associated with "evaluation apprehension" is due primarily to a desire to avoid negative evaluation or to the several kinds of uncertainty created by the observer—uncertainty about the observer's role, interests, evaluative criteria, and possible actions.

Another potential problem for Zajonc's drive theory was stated by Cottrell (3) in the form of an interesting paradox. According to Zajonc, the mere presence of another person raises an *S*s' drive level. However, affiliation researchers following in the tradition of Schachter (16) have arrived at a generalization which appears to contradict Zajonc's: namely, that a person who is fearful or anxious about an impending painful experience seeks out the company of others, as if expecting the mere presence of others to *lower* his anxiety level. "The presence of other persons reduces anxiety by providing comfort, support, and reassurance . . ." (3, p. 98). Cottrell tried to reconcile these divergent findings with an "intermediate arousal level" hypothesis: "If the initial motivational level of the individual is low, then introducing others into the situation should increase his drive level. If, on the other hand, the individual is in a high drive state, then the presence of others should reduce his drive level" (3, p. 99). Although Cottrell lists a number of problems in the design and interpretation of pertinent studies by

Amoroso and Walters (1) and Kiesler (9) which make it unwise to accept the intermediate arousal level hypothesis without further evidence, he seems to find it quite plausible in principle.

It is likely that several studies will need to be done before either of the questions we have raised, concerning the nature of evaluation apprehension and the resolution of the facilitation-affiliation paradox, can be answered completely. A number of conceptual and methodological problems remain to be solved. For example, it is important to note that researchers in the Zajonc tradition almost always study task performance while researchers in the Schachter tradition usually study people's decisions to affiliate while waiting for unpleasant experiences. We also need to know whether task-irrelevant fear and the desire to make a favorable impression on someone are simply different forms of a functionally uniform "generalized drive." Furthermore, little is known about personality or cultural variables that affect the processes discussed by Zajonc, Schachter, and Cottrell, whose work was conducted largely with use of American *S*s. For the moment, only exploration rather than definitive mapping of the area is feasible.

The task used to assess social facilitation effects should have the following two characteristics: (*a*) performance on the task is sensitive to motivational changes; (*b*) both simple and complex problems are included. Failure to meet the first criterion may lead to false acceptance of the null hypothesis—i.e., one may conclude incorrectly that social facilitation does not occur because one's measures are inappropriate. Failure to meet the second criterion is important in cases where only impairment of performance is demonstrated, since the results could be due either to increased drive or to distraction (8, 15). Fortunately, a promising task has recently been developed and tested by Hunt and Hillery (7). They designed two mazes, one simple (two alternatives at each choice point) and the other complex (four alternatives at each choice point). In a coaction setting—i.e., when more than one person worked on mazes in the same room at the same time—Hunt and Hillery found a decrease in errors on the simple maze and an increase in errors on the complex maze (performance was compared with that of control *S*s working alone). An analysis of results over trials revealed, moreover, that the presence of coactors hindered performance on the complex maze while the correct responses were being learned, but that once learning had occurred, performance was facilitated by the presence of coactors.

In the present paper we present two studies using the Hunt and Hillery

maze task. The first was designed to assess the sensitivity of the measure in studies of audience (as distinct from coaction) effects and to explore the effect of reduced uncertainty due to increased familiarity with an observer. Having demonstrated the sensitivity of the measure, we proceeded in the second experiment to explore the Cottrell paradox.

B. Experiment I

If it were true that the mere presence of another person invariably raised drive level, most social situations would be at least mildly stressful. Intuition suggests that although the social facilitation effect may occur in the presence of an unfamiliar or highly evaluative audience [as demonstrated, for example, by Henchy and Glass (6)], it will decrease or habituate over time. Surprisingly, the available evidence does not support the hypothesis that the drive effect decreases over trials within a single experiment. For example, Martens (13) measured the arousal level (palmar sweat) of *S*s working on a complex task alone and in the presence of others. Over a series of 15 trials, measurements were taken every five trials. A clear audience effect was obtained and it remained constant over the entire experimental session. There was no sign of habituation. Similarly, in a binary choice experiment, Zajonc, Wolosin, Wolosin, and Loh (22) obtained differences between the choice patterns of *S*s working alone and of those working in the presence of a spectator, and these differences remained stable over 300 trials. Finally, in a study by Kohfeld and Weitzel (10), which used treadmill walking speed as a performance measure, it was found that *S*s walked significantly faster in the presence of observers, and the effect remained constant throughout the 10-minute test period. Thus, if familiarity with one's audience ever reduces social facilitation effects, it must be in situations where familiarization occurs before the experimental performance begins. It does not seem to occur over trials once the performance has begun.

In the present study, familiarization was effected simply by having the observer sit with the *S* during the instruction segment of the experiment. Prior to this experience, the *S* and the observer were unacquainted. In the Unfamiliar Observer condition, the observer entered the experimental room and sat down after the instructions had been given, just before the *S* began working on the Hunt and Hillery maze task. It was expected that drive effects would be greater in this condition than in the Familiar Observer condition, and that drive would be lowest when *S*s worked alone. In line with Zajonc's theory and the experiments by Hunt and Hillery,

drive was to be inferred from the pattern of errors made while traversing simple and complex mazes.

1. *Subjects*

Thirty male undergraduates from Columbia University participated to fulfill part of a requirement for an introductory psychology course.

2. *Materials*

The simple and complex mazes were each engraved into a flat sheet of plexiglass; they were solved by inserting a stylus into a starting point and tracing through the grooves until the end was reached.[2] The simple maze presented two alternatives at each choice point; the complex maze, four. The stylus was electrically wired into each maze such that an error (entering a blind alley) flashed a red light, visible to *S*, and triggered a counter in another room. When the stylus hit the end of the maze, a green light flashed. Each maze was completely enclosed in a wooden box so that *S* could not see his hand.

3. *Procedure*

When *S* arrived for the experiment, *E* introduced himself, brought *S* into the experimental room, and seated him at a table on which was placed the maze apparatus and a tape recorder. In the Familiar Observer condition *E* ushered in a female, the confederate, who looked and dressed like another undergraduate, and said, "You may watch from here."[3] The confederate sat in a chair a few feet to *S*'s right where she could see *S* and the maze apparatus. In the other two conditions no person entered the room at that time. The *E* then looked at *S* and said, "This tape recording explains the general idea of the experiment. I'll be back in five minutes to fill in the details." The recording then explained that *E* was interested in learning and motor performance, and the experiment was made to seem reasonable in these terms. The tape concluded with an explanation of the maze task to be used in the experiment. At the end of the five-minute recording, *E* returned and turned off the tape recorder. In the Unfamiliar Observer condition, he then ushered the confederate into the room and said, "You may watch from here." Of course, in the Alone condition this step was

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[2] We are grateful to Peter J. Hunt and Joseph M. Hillery for providing us with plans for construction of these mazes.

[3] We are grateful to Valerie Geller for serving as an observer in this experiment. We chose a female observer on the hunch that this would increase the drive effect, although to our knowledge there is no empirical evidence for or against the hunch.

eliminated. In all conditions the *E* then told *S* in detail how to use the maze apparatus, explaining that he was to solve the maze (either simple or complex) five times without looking, and that the time spent and the number of errors would be recorded by *E* in another room. Following the five trials, *E* returned and dismissed the confederate. While in the room she had remained silent and attentive. After she departed, *S* was thoroughly debriefed and thanked for participating.

The design was a 3 × 2 factorial with three levels of inferred drive and two levels of maze complexity.

4. *Results and Discussion*

The mean number of errors for the last four of five maze runs is presented in Table 1 for each condition (results for the first maze run were not included because these were of necessity randomly determined). It is evident that the pattern predicted by drive theory was obtained: errors on the simple maze decreased, while errors on the complex maze increased. Because the cell variances were significantly different in size, a log transformation was applied before statistical analyses were performed; the means of the logs appear in parentheses in Table 1. An analysis of variance on the log errors revealed significant differences between simple and complex mazes ($F = 90.81$, $df = 1/24$, $p < .01$), but not between audience conditions (F, 1.19, $df = 2/24$). The predicted interaction was highly significant ($F = 5.21$, $df = 2/24$, $p < .025$). *A priori* comparisons between individual means within each row revealed no significant differences for simple mazes; for complex mazes, the difference between the Alone and Unfamiliar audience condition was significant ($p < .01$), as was the differ-

TABLE 1
MEAN NUMBER OF ERRORS AND LOG ERRORS ON SIMPLE AND COMPLEX MAZES FOR EXPERIMENTS I AND II

Condition	Simple maze		Complex maze	
	Errors	Log errors	Errors	Log errors
Experiment I: (n = 5 in each cell)				
Alone	23.000	1.338	61.000	1.768
Familiar observer	19.600	1.280	130.000	2.080
Unfamiliar observer	16.600	1.159	174.000	2.217
Experiment II: (n = 8 in each cell)				
Low fear alone	22.500	1.336	67.375	1.814
High fear alone	19.750	1.290	103.125	1.985
High fear calm observer	18.000	1.219	102.000	2.000
High fear worried observer	19.125	1.271	143.125	2.131

ence between Alone and Familiar Audience conditions ($p < .05$); but the difference between the two audience conditions was not. (The denominator for these comparisons was .138.)

Although the differences between conditions were not significant for simple mazes, the highly significant interaction and the pattern of means make it difficult to interpret the results solely in terms of distraction. The results are compatible, however, with the drive theory of social facilitation, and they suggest that audience-induced drive is lowered if the *S* is given the opportunity to incorporate the fact of the observer's presence into his plans for working on the task. The precise reasons for this remain to be discovered. No special information about the observer's evaluative stance was provided in the Familiar Observer condition, so it seems unlikely that lowered drive resulted from reduced evaluation apprehension. A plausible explanation might focus on the disruption and uncertainty created in the Unfamiliar Observer condition by the appearance of an unexpected observer. The concepts of "plan" and "interruption of a planned behavior sequence" provided by Miller, Galanter, and Pribram (14) and by Mandler and Watson (12) seem appropriate here. Whatever the complete explanation proves to be—and this seems worth pursuing because of its possible relevance to crowding and other conditions which threaten social coordination—the experiment convinced us that the Hunt and Hillery mazes offer a sensitive measure of observer or audience effects, and this allowed us to proceed to an analysis of the Cottrell paradox.

C. Experiment II[4]

In order to resolve the apparent contradiction between generalizations derived from research on social facilitation and affiliation under stress, several issues need to be clarified. First, if task performance is to be used as the dependent measure, it is important to know whether task-irrelevant fear—the motivational state created in most affiliation studies—actually has the drive effects on maze performance predicted by generalized drive theory. Second, it is necessary to know what research on affiliation and imitation has revealed about the effect on fearful *S*s of waiting together for a painful experience. Research on affiliation [(see Jones and Gerard) (8) for a summary] has shown that a frightened person wants to compare his emotional reactions with the reactions of others who share his fate. Model-

[4] An earlier version of this experiment, based on fewer *S*s was reported briefly by Liebling and Shaver (11).

ling research (e.g., 2) has shown that a calm model can reduce a person's fear. These findings generate the prediction that an *S* will become less frightened in the presence of a calm observer who shares his fate and more frightened in the presence of a similar-fated but frightened observer.

In order to clarify these issues in as economical a way as possible, an experiment was designed in which *S*s solved either simple or complex mazes in one of four conditions. In two conditions they worked alone and in the other two they were observed by a male confederate of the *E* who was introduced as another *S*. Some of the *S*s who worked alone were made anxious at the beginning of the experimental session by learning that they would have a blood sample taken at the end of the experiment. (A hypodermic needle, the smell of alcohol, and the presence of other medical artifacts made this story credible.) The other "alone" *S*s were not frightened in this way. Both groups of *S*s in the observed condition received the blood sample story and both believed that they and the observer were to suffer the same fate. In one group the observer reacted calmly to this information; in the other he appeared very worried.

These conditions allow us to determine whether presence of the calm observer is sufficient to lower *S*s' drive level below that of fearful *S*s working alone, and whether a worried observer is more drive-inducing than a calm observer. Differences between high- and low-fear *S*s within the alone condition allow us to assess the effects of task-irrelevant fear on maze performance. We expect the drive effect to be greatest in the "High Fear Worried Observer" condition and smallest in the "Low Fear Alone" condition. It should be intermediate in the other two conditions.

1. *Subjects*

Sixty-four male undergraduates at Columbia University received credit in an introductory psychology course for participating in the experiment.

2. *Procedure*

Each *S* solved either a simple or a complex maze five times, as in Experiment I. The four conditions described above were labelled Low Fear Alone, High Fear Alone, High Fear Calm Observer, and High Fear Worried Observer. Since there were four drive conditions and two kinds of mazes, the design was a 4 × 2 factorial.

In the two Alone conditions, *E* brought *S* directly into the experimental room. In the two Observer conditions, a male confederate accompanied

them.[5] In each case *S* was seated facing the maze apparatus. In the three High Fear conditions a syringe with a hypodermic needle was clearly visible on a table to *S*'s left, along with a stainless steel tray, a surgical scissors, adhesive tape, and alcohol-soaked cotton. The table was bare in the Low Fear condition.

After *S* was seated, *E* said that a tape recording (the same used in Experiment I) would explain the purpose of the experiment. He then turned on a tape recorder and left the room. At the end of the tape recording, he re-entered the room and, in the Alone conditions, told *S* in more detail how to use the maze apparatus. In the Observer conditions he gave the instructions to both *S* and the confederate, indicating that they would both perform the maze task—first *S*, then the confederate. After the maze-solving instructions were given and the confederate was seated a few feet to the right of *S*, the procedure was varied according to experimental conditions as follows:

a. Low Fear Alone. The *E* said, "O.K., you can start when you are signalled. I'll return when you finish for the fifth time."

b. High Fear Alone. The *E* said, "Oh, there is one more thing. Dr. Rosen of the College of Physicians and Surgeons is here today, and he is going to be taking blood samples from the arms of everyone who takes part in this experiment, since he believes that task performance influences corticosteroids in the blood. Everyone in this experiment is matched with someone else whose blood will be sampled but who will not be performing a task. Dr. Rosen will come and see you at the end of the experiment when you have finished the maze task. Now I realize that some people have very strong objections to having blood taken. If you are such a person you can be excused from the experiment right now and we will not continue." All but one person agreed to stay. After this, *E* dismissed himself as in the first condition.

c. Calm Observer. The *E* duplicated his comments from the High Fear Alone condition but now spoke to both *S* and the confederate. As *E* spoke, the confederate remained relaxed and calm but attentive. At the conclusion of *E*'s speech the confederate said, "It sounds interesting to me." Naturally, the confederate always agreed to stay, as did all *S*s in this condition. As *E* left the room the confederate said, "I've had blood taken before and it's not so bad." Later, while *S* actually worked on the task, the confederate sat quietly and still.

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[5] We would like to thank Andrew Short for serving as a confederate in this experiment.

d. Worried Observer. The *E* behaved exactly the same as in the Calm Observer condition, but as he spoke the confederate began to appear extremely anxious. He wrung his hands and sighed at intervals. His manner was that of a startled and frightened person. At the conclusion of *E*'s speech the confederate said in a trembling voice, "I don't like it, but I'll stay." All of the *S*s agreed to stay. As *E* left the room the confederate sighed and mumbled, "Oh, God." Later, however, during the task, the confederate sat quietly and still to reduce the possibility of distraction.

In all conditions, errors for each of the five traversals were automatically recorded in an adjacent room, following which *E* returned, debriefed *S* thoroughly, and thanked him for participating in the experiment.

3. *Results*

The mean number of errors for the last four of five maze runs is presented in Table 1; the mean of the corresponding log transforms appears in parentheses. In order to determine whether task-irrelevant fear had the effect on maze performance predicted by generalized drive theory, a 2 × 2 analysis of variance was performed on the results (logs) for the Alone conditions. Significant effects were found for maze complexity ($F = 183.53$, $df = 1/28$, $p < .01$) but not for level of task-irrelevant fear ($F = 2.07$, $df = 1/28$). The predicted interaction was significant ($F = 6.33$, $df = 1/28$, $p < .025$). Thus, the generalized drive interpretation was supported.

It is clear from looking at the complete set of results in Table 1 that the number of errors on complex mazes generally increased as a function of both task-irrelevant fear and presence of a worried observer. This is compatible with the hypothesis that both variables increase generalized drive. The results for simple mazes are also generally compatible with this interpretation, since there is a slight tendency for errors to decrease across conditions as errors on complex mazes increase, although the small (nonsignificant) difference between simple means in the two observer conditions is in the wrong direction. Some additional variable, perhaps distraction, may be responsible.

Following a log transformation, a 2 × 4 analysis of variance was performed on the complete set of results represented in Table 1. Significant effects were obtained for maze complexity ($F = 377.14$, $df = 1/56$, $p < .01$) but not for drive conditions ($F = 2.19$, $df = 3/56$). Again the interaction proved significant ($F = 5.14$, $df = 3/56$, $p < .01$). *A priori* comparisons between individual means within each row of the table revealed no significant differences between simple maze conditions; for complex mazes,

Low Fear Alone differed significantly ($p < .05$) from all other conditions, Hear Fear Alone differed from Worried Observer ($p < .05$) but obviously differed not at all from Calm Observer. Calm and Worried Observer means were marginally different ($p < .10$). (The denominator for these comparisons was .072.)

4. *Discussion*

Task-irrelevant fear appears to affect maze performance in the manner predicted by generalized-drive theory, as does the presence of a worried observer. Although differences in the simple maze conditions were not significant, it would be hard to argue for a distraction hypothesis from these results (it will be recalled that the simple mazes were included in the experiment in order to evaluate this hypothesis). Results for the Worried Observer condition do, however, leave open the possibility that distraction plays a minor role. We did not find that a calm, comforting observer was sufficient to lower inferred drive below the level created in fearful *S*s working alone. Therefore, there is no strong evidence in our results for the paradox discussed by Cottrell—although if we entertain the assumption that a neutral (as distinct from calm) observer would have had a larger effect, as in Experiment I, it remains possible that a small calming effect was obtained. This interpretation must be tempered by three considerations: (*a*) the observer in Experiment II was "familiar" in the sense established in Experiment I; (*b*) the observer in Experiment II was almost a coactor rather than observer, because he was expected to perform the task later; and (*c*) one observer was female and the other male. We do not know how much weight to put on any of these factors.

Looking back through the affiliation literature, we were surprised to find vey little direct evidence for the comforting effects of companions on fearful *S*s. Most researchers in the Schachter tradition—e.g., Gerard (5), Zimbardo and Formica (23)—have assessed *S*s' *choices* between waiting for a painful experience alone or in the presence of others [the notable exception, Wrightsman (19), was based on subjective reports rather than behavioral measures]. They have not determined whether the presence of others actually had a drive-reducing effect. Informal observations and some of the modelling literature (e.g., 2) suggest that there are some situations in which another person is truly calming in the drive-reducing sense, but these situations do not seem to include ones in which the fearful person is performing a task under surveillance.

Careful considerations of our experimental setting and of conditions

created in other recent studies (4) suggests that Zajonc's 1965 theory is too simple. There probably is no such thing as the "mere presence" of an observer *in a task situation*; a task observer will always be perceived as somewhat evaluative or will at least arouse some uncertainty concerning evaluation and hence will tend to increase task-relevant drive. Task-irrelevant drive is another matter, however. Consistent with the literature on modelling and social comparison processes (2, 17, 19), we find that the emotional reactions of a similar-fated observer are mirrored by the inferred drive level of a task-performing *S*. In our experiment this process was apparently sufficient to *raise* drive above its level in the High Fear Alone condition, but was not sufficient to bring it below this level. It is still conceivable that the paradoxical effect suggested by Cottrell could be obtained if the magnitude of task-irrelevant drive were quite large in comparison with the increase in task-relevant drive created by the presence of a mildly evaluative observer. It remains to be seen whether such conditions can actually be created in a laboratory.

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STREET ADDICT VALUES: A FACTOR ANALYTIC STUDY*

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SUMMARY

This study was designed to describe the values of the street addict subculture. It was hypothesized that the values would be oriented around the three major components of the street addict role: the "cool cat" pattern, the importance of conning behavior, and the addict's antisociety viewpoint. A completed 92-item test protocol was obtained for a total of 516 narcotic addicts. The sample consists of 73 percent males and 27 percent females—63 percent black, 30 percent white, and 7 percent other. A series of principal component analyses with varimax rotations yielded a final six-factor structure composed of 47 items. The results indicated that a value structure, centered on the street addict role concept, did seem to exist. This value structure was also found to be similar in many ways to value systems of both delinquent subcultures and black lower-class ghetto dwellers. Thus, the question remains whether the value system is unique to street addicts or is merely reflective of a more general ghetto life-style.

A. INTRODUCTION

Narcotic addiction in America has been viewed from a number of different perspectives. Some observers have emphasized its physiological aspects (5), others its psychiatric properties (8), while yet others have looked at addiction from the vantage point of a number of different disciplines (2). Recently, there has been the growth of a literature which highlights the sociocultural aspects of addiction (1, 6, 8, 10, 14, 15). This literature focuses on one type of narcotic addict in the United States—the street addict—who is typically a heroin-using, slum-dwelling, minority

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group member. The street addict belongs to a well-developed subculture in which he learns about drugs and techniques of crime and also assimilates a set of behavioral norms and values; in short, he is provided with a role. This role has been defined (13) and a first attempt at operationalizing the concept has also been made (14). In addition, the place of the role within a larger typology of addicts has been defined (8). The purpose of this paper is to extend further our knowledge by presenting an empirical study of street addict values.

It was felt that the street addict value structure would probably revolve about the three major components of the street addict role: the "cool cat" pattern, the importance of conning behavior, and the addict's antisociety viewpoint. These components have been described elsewhere in fuller detail (13). Briefly, the first component, the "cool cat" pattern, is divided into eight overlapping subelements: (*a*) the lack of social concern—a concern with self and lack of interest in the problems of others; (*b*) the importance of outward appearance—the great importance put upon the conspicuous display of wealth as represented by clothes, "flashy" cars, and other status conferring material goods; (*c*) the argot—use of "hip" slang to indicate addict's membership in the "cool" street world; (*d*) the "cool" image—the emotional neutrality and posture of never revealing one's true feelings to others; (*e*) search for excitement—frenetic search for thrills and feeling of power which comes from overcoming danger; (*f*) short-run hedonism—the "live for today" philosophy with little thought given to planning for the future; (*g*) the "code of the cool cat"—tacit rule which forbids divulging information (i.e., informing) about fellow addicts to authorities or other nonaddicts; (*h*) the "passive cool cat"—the concept that the addict should remain "cool" and resort to physical violence only as an extreme last resort.

The second major role component is the street addict's conning ability. "Conning" serves several functions. First, the addict acquires material rewards through the use of various schemes or "con games." The money acquired from such conning helps him to support his habit. Secondly, the addict gains status inasmuch as the good con artist is something of a culture hero in the street addict value system. And thirdly, the addict gains a number of other rewards, such as a sense of good craftsmanship, power, revenge, and personal meaning (7).

The third and final component of the street addict role is his antisocietal viewpoint. He believes that "everybody's got a game"—only society condones some games and not others. Those in positions of power—i.e.,

politicians, businessmen, etc.—merely use the legal machinery to exploit the disenfranchised. Hence he is entirely justified in using whatever means he can to avenge himself. He has no respect for the law which he understands to be the means the Establishment uses for its own purposes.

B. Methodology

With these three major role concepts in mind, it was decided to construct a series of attitudinal items which hopefully would measure street addict values. Accordingly, a 93-item questionnaire was constructed. All items were constructed by the authors using the elements of the street addict role (as discussed above), as guides for construction. All items were of the Likert type ("stongly agree" to "strongly disagree"). Also included in the questionnaire were items related to the *S*'s background and some measures of involvement in the drug subculture.

The questionnaire was administered to a total of 559 narcotic addicts in the Spring of 1972. Forty-three test protocols were eliminated from the final sample because of large numbers of skipped questions or careless marking. The final sample of 516 *S*s included 198 patients from the NIMH Clinical Research Center at Lexington, Kentucky. All of these patients were in a psychiatrically oriented, drug-free treatment modality. Additional *S*s were recruited from ambulatory methadone maintenance programs in Chicago, Illinois. These included 194 from the University of Illinois Clinic, 78 from the Madison Street Clinic, and 46 from the Northside Clinic.[1] The final sample was composed of 73 percent males and 27 percent females. The ethnic composition of the final sample was 63 percent black, 30 percent white, 6 percent other, and 1 percent unknown.

All *S*s were instructed as to how to complete the attitude instrument. They were told that the survey was not a test, there were no "correct" answers, and that they should record their honest opinions for each item.[2] *S*s were not only guaranteed anonymity and confidentiality of their responses but were also assured that their cooperation and performance would in no way affect their treatment.

The items were scored so that high scores indicated agreement with the

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[1] The authors would like to thank the staff of these clinics and members of the research staff of the Illinois Drug Abuse Program for their invaluable help.

[2] As noted "conning" is one component of the street addict role. Thus, there is always the possibility that the addicts were "conning" the researchers in this study and responding in ways which did not express their true opinions. However, at least two studies have been conducted which indicate that addicts appear to be truthful respondents in research studies (2, 12).

presumed street addict role. The means for 92 items (one had been eliminated because of ambiguous wording), were obtained and in the few instances (1%) where an item or items had been left blank by the respondent, the cell was filled with the closest approximation to the group mean for the item. Filling the missing data cells with the equivalent of the group mean cannot raise the correlations between variables if the missing data are random, although it must be acknowledged that slight distortion in individual factor scores may have resulted.

C. Results

The 92-item intercorrelation matrix was initially factored by the principal components method, with factor extraction arbitrarily limited to nine components. Because the primary interest was in common variance, it was decided to delete some items with low commonalities. This procedure was used with two component analyses and varimax rotations eliminating first 22 items and then an additional 23 items. The final 47-item intercorrelation matrix was refactored and six components emerged which accounted for 34.4% of the variance.[3] Seven items displayed overlap with a second factor. Those items were assigned to the factor that had the largest loading or to the factor with the smallest number of items, if the loadings were similar. One item was also eliminated because the directionality of its loading was opposite to the predicted direction, thus making it possible simply to unit-weight and sum the items on each scale to develop a score for the factor.

Following is a list of the six factors. The specific items, with their loadings, are shown in Table 1.

TABLE 1
The Six-Factor Value Structure (with Item Loading)

Item	Loading
Factor 1: Antisociety viewpoint	
1. Policemen are usually dishonest.	.63
2. To be successful a man must cheat at times.	.59
3. Laws benefit those in power at poor people's expense.	.55
4. Men will cheat on their wives if they believe they won't get caught.	.53
5. Most people would break the law if they weren't afraid of getting caught.	.50

[3] Copies of the intercorrelation matrix and the complete data on the factor analysis are available from the senior author. Because the amount of variance accounted for is relatively small, this study should be considered an exploratory one and the conclusions drawn should be considered as tentative.

Item	Loading
6. Most people are interested only in themselves.	.49
7. To be successful men get their money by conning others out of it.	.49
8. A smart man can usually get others to work for him.	.47
9. It is natural for a man to feel better about himself when he is wearing expensive clothes.	.46
10. It is unwise to reveal your true feelings to a stranger.	.45
11. A "square" cannot really understand a drug addict.	.43
12. Most basic problems with drugs result from unfair laws.	.37
Factor 2: Rejection of middle-class values	
1. Security is more important than an opportunity to become rich. (disagree)	.61
2. The motto "honesty is the best policy" is wise. (disagree)	.57
3. It is more satisfying to lead a secure life than an exciting one. (disagree)	.56
4. Hard work is rewarded. (disagree)	.56
5. "Squares" enjoy life more than hip people. (disagree)	.46
6. It is more rewarding to give help than receive it. (disagree)	.45
7. Justice demands that a man pay for his crimes. (disagree)	.44
8. People respect intelligence more than they do physical strength. (disagree)	.42
9. A lawbreaker should be reported to the police. (disagree)	.36
10. The laws of this country protect the average citizen. (disagree)	.36
Factor 3: Excitement-hedonism	
1. It is best to live each day rather than make plans far in advance.	.55
2. A person who is addicted to heroin is not responsible for his behavior.	.54
3. It is silly to plan too far ahead because life is too uncertain.	.52
4. The addict can't help what he does.	.52
5. "Squares" are people who are afraid of the disapproval of others.	.47
6. Hustling is as exciting as shooting dope.	.45
7. The philosophy "live fast, die young" is the most sensible.	.43
8. Most people who talk like "squares" are dull.	.43
9. Addicts are generally "slick" people.	.34
Factor 4: Importance of outward appearances	
1. Clothes indicate the worth of a man.	.67
2. One should not measure the worth of a man by his dress, car, or bank account. (disagree)	.50
3. Asking for help is a sign of weakness.	.46
4. It is intelligent to impress people as much as possible by wearing the right clothes.	.46
5. Having money is more important than how one gets it.	.43
Factor 5: Valence of street addict subculture	
1. Following treatment, an ex-addict should avoid drug-using friends. (disagree)	.62
2. Following treatment, an ex-addict should stay away from his drug-using neighborhood. (disagree)	.58
3. An ex-addict can't stay clean and have addict friends at the same time. (disagree)	.56
4. Junkies are some of the worst people in the world. (disagree)	.47
5. Junkies are desirable friends.	.35
Factor 6: The "cool cat"	
1. It is dangerous to talk about personal matters with most people.	.51
2. When other people discover your weaknesses, they lose respect for you.	.50
3. A person should put his trust in others. (disagree)	.47
4. It is better to remain emotionally uninvolved than to run the risk of being hurt.	.46
5. If you like a person it is wrong to criticize him even if you're aware of a fault in him.	.34

Factor 1—*Antisociety viewpoint* measures the idea that people are basically dishonest and egocentric. The factor also indicates the cynicism of the addict about nonaddict others.

Factor 2—*Rejection of middle-class values* indicates the denigration of the alleged "square-life" ideals of hard work, security, and honesty. In fact, this factor is so well defined that one is tempted to assert that the addict subculture is almost a contraculture.

Factor 3—*Excitement-hedonism* represents some of the elements of the "cool cat" pattern. Again, the factor appears to measure the "square-addict" dichotomy with the addict lifestyle being a much more exciting and intense response to life. The factor structure strongly suggests that addicts do endorse the fast life and pursuit of immediate gratification with little thought given to the future.

Factor 4—*Importance of outward appearances* indicates that the addict subscribes to the conspicuous consumption mode of life. Money, clothes, and cars are to be used for image management as much as for any intrinsic worth they may have.

Factor 5—*Valence of street addict subcultures* seems to indicate the importance of addict friends and involvement in the addict subculture. Rather than noting possible dangers inherent in membership in the addict subculture, the factor seems to measure the allegiance which even a "clean" addict is supposed to have to his addict friends.

Factor 6—*"Cool cat"* emphasizes the addict's emotional aloofness. It makes the point that weakness is defined as being emotionally liable to other persons. In other words, one should never "open up" to others.

D. Discussion

Some preliminary conclusions can be drawn from this research. First, the research does seem to indicate that, by and large, the values reflective of the components of the street addict role as hypothesized earlier in this paper do have empirically observable referents. The three major elements of the role—the "cool cat" syndrome, the antisocietal viewpoint, and to a lesser degree, the importance of conning—emerge from the factor analysis. The first two components have clearly defined factors, while "conning" is a "leit-motif" which recurs throughout many of the factors.

These findings can be compared with the delinquency studies of Miller (9) and Cohen (4) and the study of black, lower-class life-styles by Rainwater (11). In developing an explanation for delinquency among lower-class youth, Miller hypothesized that delinquent behavior is reflective of

the underlying lower-class value structure.[4] This value structure revolves about the six focal concerns: (*a*) the concern with "trouble," (*b*) toughness, (*c*) smartness or ability to outsmart others, (*d*) excitement, (*e*) fate, and (*f*) autonomy or freedom from superordinate authority. The reader will note a striking similarity between Miller's description of the value structure and the one contained herein. While it is true that the factor analysis yielded only one factor that directly corresponds to a focal concern, the excitement-hedonism factor with the excitement focal concern, much of the content of the two different descriptions overlaps. Contained within the excitement-hedonism factor is also the "fate" concern which Miller describes. Items such as "it is best to live each day rather than make plans far in advance" reflect this fate component. "Smartness" is primarily the ability to con which, as has been discussed, runs throughout the analysis presented in this paper. Autonomy is to some extent reflected in the "cool cat" factor in that the essence of that factor is emotional coolness and aloofness—that is, the person values noninvolvement with others. Concerns with trouble and toughness are to some degree found in Factors 1 and 2—the factors which measure antisocietal viewpoints and rejection of middle-class values. But more important than potential correspondence between factors and focal concerns is the "flavor" of the value structure presented by these two different analyses. In effect, the two studies reflect very similar value descriptions of persons who prize the "fast life," live-for-today ideology.

Cohen in his *Delinquent Boys* sees the delinquent response as a reaction whereby the lower-class delinquent boy inverts the middle-class value system and uses this anti-middle-class ethic as the blueprint for his behavior (4). The present analysis suggests that such an inversion mechanism appears to operate with the street addict as well, particularly in the case of Factor 2. While both Miller and Cohen attempted to explain deviant (*vis-à-vis* middle-class standards) behavior, Lee Rainwater was not interested in "deviant" behavior, *per se,* when he studied black lower-class behavior patterns. Several of his findings are relevant to the present study although the reader must be cautioned that he studied only blacks while the present sample was about one-third white. Rainwater notes, for instance, that a premium is placed on the exploitation and manipulation of peers. In response to this threat of manipulation, he describes how people

[4] The assertion that lower-class values exist and are substantially different from those of the middle class is a controversial issue and one with which these data cannot deal. See Valentine (16) for a review of the issues.

relate to each other defensively—that is, they attempt to ward off manipulation and exploitation by peers. Rainwater also describes the expressive life-style of the young black, which is an exciting, action-oriented response to life (11).

Obviously, there are overlaps between what Rainwater describes and the results of this study. His descriptions of the role of manipulation and the reaction to that manipulation are seen in the "conning" analysis presented herein and the "cool cat" factor. The expressive life-style is similar to the excitement-hedonism and importance of outward appearance factors. Though the overlap between the description of the street addict way of life and the ghetto dwellers' life-style is great, it is not complete. Rainwater does not suggest that the ghetto dweller has an anti-middle-class ideology. If anything, he suggests that the opposite is true; the ghetto dweller must adjust his aspirations downward, using the limited resources available in the ghetto, to carve out a meaningful existence and identity.

It may be that for most slum dwellers, one of a limited number of possible identities is the "street addict" role. It is certainly an expressive life-style and at least initially provides the person with certain physiological rewards in the form of a "high." Additional reinforcement is found in a secure self-identity and membership and status in a peer group (3).

In fact, it may well be that there is no value entity that is distinctively street addict. Rather, street addict values may be merely reflective of a lower class life-style and adaptation to life. Certainly, as has been demonstrated here, there is a large overlap in the value structure of ghetto dwellers, delinquents, and street addicts. That the addict may have acquired this particular value structure through socialization as a ghetto or slum dweller rather than as an addict is a distinct possibility.

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REFERENCE GROUP THEORY, SOCIAL COMPARISON THEORY, AND THE STUDY OF POLITICS*

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SUMMARY

An experiment was designed to test the hypothesis that the federal government is a major determinant of standards by which citizens evaluate public policy. *S*s were 80 freshmen students (46 males, 34 females) enrolled in an introductory American Government class at Ohio University. The test instrument consisted of presenting to each of four randomly divided groups one of four different sets of standards purported to be those of the federal government. The results illustrated that effective manipulation of standards may be quite possible, especially for the issue of poverty ($F = 8.50$, $df = 3,75$, $p < .001$). The experiment suggests governments not only react to demands as indicated in much of the traditional theoretical literature, but also may determine the demands by means of changing expectations about government performance.

A. INTRODUCTION

One of the fundamental problems in the study of politics is the precise nature of the relationship between the demands of the citizenry and the corresponding response(s) of the government. In order to understand fully this relationship, Edelman (2, 3) has suggested that it is necessary to establish the linkage between citizen expectations and citizen demands. According to Edelman's formulation, it is the government which provides political cues and gives meaning to political events. The aim of the present research is to bring to bear on this latter problem the theoretical notions of reference group and social comparison theory and simultaneously to provide some empirical support to Edelman's symbolic theory of politics.

The sources of standards that individuals may select are quite numerous. The findings from reference group theory (1, 5, 8, 10) and social compari-

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son theory (4, 6, 7) suggest, however, that most individuals limit the range of standards by choosing standards that are close to them in terms of the primary dimension being evaluated (the main focus of social comparison theory) or in terms of some secondary dimension—e.g., occupational similarity, propinquity, similar social class—which is theorized to be relevant to the primary dimension being evaluated (the main focus of reference group theory). An explanation common to both theories for the selection of close standards is that these standards are the most salient to the individual (9). By merging this basic tenet of reference group and social comparison theory with the symbolic theory of politics of Edelman, we can hypothesize that one agency in society that raises the saliency of numerous standards of evaluation is the government.

The standards promulgated by the government in the United States vary from those which are quite authoritative, such as minimum wages in employment, parity levels in agriculture, and contamination standards in food, to more suggestive informational types of standards, such as the cost of living index, wage-price guidelines, and various living standards. Even the latter standard has an authoritative component to it, since the standard established for poverty often determines who is eligible for various forms of governmental welfare assistance.

The question this research note poses is the following: to what extent can the government influence the standards which individuals adopt to evaluate public policy? If the principles of social comparison, reference group and symbolic theory are correct, then we should expect that associating a particular standard with the official government standard would influence the evaluation of that standard. Traditionally, political scientists ask the question of who gets what, when, and how. In this study the question is, "can, or does the government determine what people *expect* to get?" An experiment was conducted to discern the effects of apparent federal government standards upon individual evaluations of three significant issues of public policy—poverty, inflation, and unemployment.

B. Method

*S*s were 80 students enrolled in an introductory American Government class at Ohio University in the 1974 Spring quarter. The *S*s were randomly assigned to four groups. All *S*s were told that in dealing with the problems of the economy, the federal government employs various standards. Each *S* was then instructed to list what he believed to be an appropriate standard to be used in dealing with the problems of unemployment, inflation, and

poverty. In the case of unemployment, the question was what should the federal government tolerate as an acceptable level of unemployment. For inflation, the question was what rate should the federal government tolerate. And, similarly, for poverty, the question was what income level should the federal government use to determine the poverty level for a family of four living in an urban area.

The experimental manipulation consisted of providing each of the four groups with different standards, each purported to be currently employed by the federal government. The alleged standards employed by the federal government are indicated in Table 1.

TABLE 1
PURPORTED FEDERAL GOVERNMENT STANDARDS AND *S*'S EVALUATIONS

	Unemployment		Inflation[e]		Poverty	
Group	Standard	*S* evaluation	Standard	*S* evaluation	Standard	*S* evaluation
Group I	0%	1.82%	2%	1.67%	$3535[b]	$5152
Group II	2%	1.54%	4%	2.47%	$4137[c]	$5857
Group III	4%[a]	2.54%	6%	3.15%	$4540[a]	$6300
Group IV	6%	2.87%	8%	2.83%	$6137[d]	$8073
No standard (pre-test)	—	2.15%	—	2.31%	—	$5436

[a] The actual current standard.
[b] The 1966 standard.
[c] The 1971 standard.
[d] The suggested standard of The People Rights and Benefits League.
[e] There is no current government standard for inflation.

Assigning the three standards to each group was an arbitrary consideration. It could be argued that the "ideal" economic system would be characterized by full employment, very low inflation, and relatively high standard for poverty and thus the standards should be joined in a variation on this model. However, ideological consideration and possible trade-offs as in the case of unemployment and inflation might bring into question this "ideal" system. In a pretest with a smaller sample, different associations of the standards made little difference in the outcomes. Also in the pretest, one group ($N = 18$) was asked to state their evaluations on these issues *without* any information about the alleged standards of the federal government. This provided a benchmark and will be reported in the results.

If increasing the salience of standards results in the acceptance of those standards, then the mean score of each group should be very similar to the standard purported to be the federal government's standard. Thus the

acceptance of the standards should vary directly with the increase in the alleged government standards.

C. Results

While the data displayed in Table 1 are not completely unambiguous, in general they do support the hypotheses. None of the group means for any of the standards corresponds precisely with the purported federal government standard; however, the general configuration of the means reflects the variation in the alleged standards. This result was especially clear in the case of poverty. For this standard not only did the group means vary directly with the purported standard, but the differences were also statistically significant. The overall F test ($F = 8.50$, $df = 3,75$, $p < .001$) was significant and the *post hoc* comparisons using the Duncan technique revealed that Groups 1&3, 1&4, 2&4, and 3&4 were all significantly different.

For the standards of unemployment and inflation the distributions of means were generally linear in nature reflecting the experimental manipulations, although neither F ratio ($F = 2.423$, $df = 3,76$; $F = 1.68$, $df = 3,77$) quite reached the conventional .05 level of significance. One factor that might account for the limited statistical significance of these particular standards was the rather narrow range of the experimental treatment. A more extreme value, for example 10 percent for unemployment, while perhaps yielding differences of greater statistical significance, might have brought into question the credulity of the standard as being used by the federal government.

D. Discussion

These results do suggest that it is possible to manipulate standards for evaluation of public policy issues by raising the saliency and/or changing the standards. Therefore, the experiment tended to confirm the basic tenets of social comparison theory and reference group theory, as well as Edelman's basic contention that government activity can and does influence the beliefs, perceptions and, potentially, the expectations of the public.

Two additional points about the experiment should be noted. First, among this sample of university students all of the means for the poverty standard, including the pretest where no standard was provided, were well above the current standard employed by the government, but in the case of unemployment the group means were well below the current standards.

Also while there is no official acceptable government standard for inflation, all the means were well below the current rates estimated to be 10-12 percent. A common sense explanation for these findings would be that these are the positions liberal college students are expected to take. A different sample might yield altogether different results. However, an alternative explanation in terms of social comparison theory would focus on the saliency of the various issues. If we assume that the issues of unemployment and inflation are the more dominant issues in the political area than the problem of poverty (the amount of media coverage of these issues and Gallup polls would support this assumption), then we should hypothesize that the more remote the public policy issue, the more susceptible the particular public is to accept the standards provided by the government. The greater differences observed for the poverty standard as compared with inflation and unemployment standards would support this contention. Only additional research will be able to discern whether this effect is traceable to the saliency-remoteness dimension or to the nature of the sample.

Second, from the perspective of the study of public policy, the implication of the results might facilitate the government's ability to deal with these problems to the extent that the federal government standards for inflation, unemployment, and poverty (and any other standards) influence the public choice of standards. Or, alternatively, one way of dealing with the problems of inflation and unemployment is to raise the acceptable levels. Similarly, one way to eliminate the problem of poverty is to redefine what it means to be poor.

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CROSS-CULTURAL NOTES

Under this heading appear summaries of studies which, in 500 words or less, provide comparable data from two or more societies through the use of a standard measuring instrument; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, 99, 289-290.

SOCIAL AGENTS IN CHILDREN'S HAPPINESS*

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Parents, school teachers, peers, neighbors, and government all play significant roles in making children understand social reality. They provide children with food, living facilities, schools, playgrounds, security, and what not. Children's happiness with the environment constituted by these social agents is an important area of inquiry. Surprisingly, however, this topic has not received proper attention of personality and social psychologists. The intent of the present study was thus to examine the contribution of parents, school teachers, peers, people of own caste, people of other caste, and government to children's happiness with the present state of affairs (i.e., material and social living conditions).

Twenty *Brahmin* and 20 *Scheduled Caste* boys from the primary schools of Kanpur (India) Muncipality served as *S*s. The two *caste* groups were comparable with respect to their mean age (9 years) and father's occupation (factory workers). A woman psychologist interviewed all the 40 *S*s individually.[2] Each *S* indicated level of his happiness concerning the present state

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[1] Requests for reprints should be sent to Ramadhar Singh at the address shown at the end of this article.
[2] Prabha Srivastava interviewed all the children. Before the interview, she greeted the child, told her name and occupation to him, and asked his name. In general, she spent five minutes over establishment of rapport.

of affairs and then judged the contribution of parents, school teachers, peers, people of his caste, people of other castes, and government to his expressed happiness. These judgments were made by choosing one out of seven cloth squares varying in size from 1 cm to 7 cms. The presentation of the six social agents and of the seven squares was randomized.

Both the *Brahmin* ($M = 6.25$) and *Scheduled Caste* ($M = 6.40$) boys reported equal level of happiness concerning their present state of affairs. In fact, they indicated extreme happiness, even though they encounter every day many people with a very high standard of living in Kanpur city. This reaction probably reflects their low aspiration and motivation.[3] Both groups perceived the relative contribution of the six social agents to their happiness in precisely the same way ($F < 1.$).

The six social agents were perceived to make different contributions ($F = 16.09$, $df = 5/190$, $p < .0001$). Parents ($M = 6.33$), school teachers ($M = 5.95$), peers ($M = 5.38$), people of own caste ($M = 5.85$), people of other castes ($M = 4.30$), and government ($M = 5.73$) were all acknowledged for their contribution to happiness. Application of the Neuman-Keuls test ($p = .05$) indicated four main trends. First, parents, school teachers, people of own caste, and government contributed equally. Second, contribution of peers was less than that of parents, but equal to those of school teachers, government, and people of own caste. Third, people of other castes contributed lowest of all the social agents. Finally, the contributions by people of own caste and by those of other castes were strikingly different. This finding suggests that a positive attitude toward one's own caste and a negative attitude toward other castes develop quite early in children. Furthermore, people of other castes are negatively viewed today, similar to a tendency noted quite 15 years ago.[4]

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REPLICATIONS AND REFINEMENTS

Under this heading appear summaries of studies which, in 500 words or less, provide useful data substantiating, not substantiating, or refining what we think we know; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, 99, 291-292.

BIRTH-ORDER COMPATIBILITY AND SAME-SEX DYADS: A REPLICATION*

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Toman[2] has theorized that opposite-sex relationships exhibit interpersonal stability to the degree that dyad members are compatible for birth order. Birth-order compatibility means the absence of (*a*) rank conflict—e.g., older brother of sisters marrying an older sister of brothers; and (*b*) sex conflict—e.g., older brother of brothers marrying a younger sister of sisters. Previous research[3] extended Toman's theory to relationships between dyad members of the same sex. Results supported the prediction that those dyads exhibiting least interpersonal conflict would be those in which members' birth orders reflected sibling relations of the same sex and were appropriately matched for rank. For example, older sisters of sisters generally got along better with younger sisters of sisters (no rank and sex conflict) than with older sisters of brothers (rank and sex conflict). The present research sought to replicate this previously successful application of Toman's theory to same-sex dyads, and to determine whether the prediction held for same-sex relations for both sexes.

A sample of Vassar College dormitory roommates (31 pairs of females, 31

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[1] A more complete report may be obtained from the first author at the address shown at the end of this article.

[2] Toman, W. Family constellation: Theory and practice of a psychological game. New York: Springer, 1969.

[3] Scheidt, F. J., & Smith, M. E. Same-sex dyads and Toman's theory of birth-order compatibility. *Psychol. Rep.*, 1974, **34**, 1174.

pairs of males) indicated (*a*) their familial birth-order relations and (*b*) the degree of interpersonal conflict experienced with their roommates. Interpersonal conflict was defined as the degree of controversy, disagreement, and argumentativeness among roommates. This was assessed on a five-point scale, with 1 representing "no conflict" and 5 representing "much conflict." Each pair was then classified as (*a*) compatible or incompatible for birth order (presence of rank and sex conflict) and (*b*) reporting high (scale value of 3 or higher) or low (2.9 or below) interpersonal conflict.

Eighteen of the original 62 pairs exhibited partial complementarity of birth-order (rank or sex conflict only). Analyses of the remaining fully incompatible (rank and sex conflict) and compatible pairs were performed. Of the pairs of females, two pairs exhibited low interpersonal conflict and conflicting birth orders; one pair, high interpersonal conflict, no birth-order conflict; 17 pairs, low interpersonal conflict, no birth-order conflict; and four pairs, high interpersonal conflict, birth-order conflict. A test for independence yielded significant results ($\chi^2 = 6.82$, $df = 1$, $p < .05$). Data for the male pairs were distributed as follows: no pairs experienced low interpersonal conflict and birth-order conflict; one pair, high interpersonal conflict, no birth-order conflict; 13 pairs, low interpersonal conflict, no birth-order conflict; six pairs, high interpersonal conflict, birth-order conflict. Results for males were also significant ($\chi^2 = 12.10$, $df = 1$, $p < .05$).

The present study replicates the previous research, and also provides some evidence that the birth-order/interpersonal compatibility relationship applies to same-sex dyads of both males and females. It offers consistent support for the successful application of Toman's theory to dyadic relations with members of the same sex.

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SOCIAL FACILITATION THEORY AND EXPERIMENTER ATTRACTIVENESS*

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Zajonc states that the presence of others increases the probability of the dominant response being emitted.[1] On learning tasks *S*s do better when alone, and on performance tasks they do better when others are present. Zajonc suggests that the presence of others is a source of general arousal or activation, and it is this arousal that increases the probability of the elicitation of the dominant response.

If activation level is the causal factor of task performance, then differences should also occur as a function of the identity of the observer. Walster and others have shown the importance of physical attractiveness in the American culture.[2] A normal male should show general arousal when viewing an attractive female, more so than when viewing an unattractive female. If there is a difference in general arousal under these conditions, then differences should occur in task performance.

The present study examined the task performance of both males and females in the presence of either an attractive or unattractive female *E*.

*S*s were 32 male and 32 female American psychology students. Each *S* attempted four tasks, two of which required the acquisition of new responses and two, the emission of well-learned responses. The two learning tasks were the learning of a list of eight nonsense syllables and the pursuit rotary task. The two performance tasks were 20 simple multiplication problems and the verbal section of the Minnesota Clerical Test.

*S*s were randomly assigned within sex to one of two experimental conditions. The same female *E* was used for both conditions. Appropriate makeup and dress were used to accomplish either an attractive or unattractive appearance.

* Received in the Editorial Office, Provincetown, Massachusetts, on February 10, 1975.
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[1] (*a*) Zajonc, R. B. Social facilitation. *Science*, 1965, **149**, 269-274. (*b*) Zajonc, R. B. Attitudinal effects of mere exposure. *J. Personal. & Soc. Psychol.*, 1968, Monog., 1-29.

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For both learning tasks *S*s did better in the unattractive condition, as predicted. In the nonsense syllable task *S*s in the unattractive condition had more correct anticipations ($\bar{X}$ = 32.78) than *S*s in the attractive condition ($\bar{X}$ = 15.31, $F = 25.25$, $df = 1/60$, $p < .001$). There was an interaction between condition and sex of *S* with females doing slightly better in the attractive condition and males having more correct anticipations in the unattractive condition ($F = 5.09$, $df = 1/60$, $p < .05$). Mean scores of male and female *S*s for both conditions on the pursuit rotor task show that attractive condition *S*s did less well ($\bar{X}$ = 4.43) than *S*s in the unattractive condition ($\bar{X}$ = 8.12, $F = 7.72$, $df = 1/60$, $p < .01$).

For the two tasks which involved the emission of a well-learned response the findings are not as clear-cut. There was no significant differences found in the clerical test scores. However the *S*s in the unattractive condition had significantly ($F = 6.66$, $df = 1/60$, $p < .05$) more correct answers than *S*s in the attractive condition.

It is suggested that the relationship between activation level and task performance is more complicated than Zajonc suggests.

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BIRTH ORDER AND INSTITUTIONALIZATION OF THE AGED*

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A consistent finding in the literature on aging among Americans has been that when compared to elderly persons in the community, institutionalized elderly persons appear more apathetic, depressed, depersonalized, and psychologically less competent to cope with daily required functions.[2, 3] There has been considerable controversy over whether such conditions are the result of institutionalization only, or whether they also reflect the self-selection of persons of poorer status into institutions. Research on self-selection has failed to explain all of these deleterious effects.[3] An important question, then, concerns what personal characteristics might foster a greater ease of adaptation to institutionalization and mediate its negative effects. Birth order is of great interest because it has been related to dependency, need for affiliation, and coping responses under stress, but only in younger *Ss*. Whether birth order is a psychologically important factor among the elderly has not been extensively investigated. Among younger persons, firstborn and only children have been found to be more dependent and affiliative, particularly under stress.[4] Being sent to an institutional nursing home for the elderly has been popularly viewed as "shelving," or isolating the elderly from whatever source of support might have been provided by their families in the community setting. Thus, later borns were hypothesized to be better candidates for adjustment to, and survival in institutions.

One hundred thirty-nine elderly persons (median age of 82.5 years), approximately equally divided between two large nursing homes, completed a biographical interview, including birth order. The two homes were

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[1] Reprint requests should be directed to the second author at the address shown at the end of this article.
[2] Eisdorfer, C., & Lawton, M. P. The psychology of adult development and aging. Washington, D. C.: Amer. Psychol. Assoc., 1973.
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quite diverse in nature (in one home approximately 80% of the patients were on welfare, and in the other only 20% were on welfare). In both homes, institutionalization of the patient generally was considered to be permanent. The length of time patients had been institutionalized varied from 1-112 months. A 2 × 2 analysis of variance was performed on the data to determine the effects of age (< 82.5 *vs.* ≥ 82.5 years) and birth order (firstborn and only children *vs.* later borns) on length of institutionalization. A main effect was obtained for birth order ($F = 5.93$, $df = 1/135$, $p < .025$). There were no age or interaction effects. Later borns had been institutionalized longer (firstborn $\overline{X} = 21.9$ months, later born $\overline{X} = 32.8$ months). As there was no significant age difference between first and later born patients at the time of institutionalization ($t = .041$), $df = 137$, $p < .97$), these data support the hypothesis that later born elderly persons are better candidates for survival in institutions.

The present findings are consistent with previous birth order data, and suggest that birth order is an important psychological variable throughout the life span. These institutional data are particularly interesting in view of the longer life expectation generally attributed to earlier born children.[5] From a practical standpoint, one dimension has been identified which improves the prediction of the survival of elderly persons in institutions.

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[5] Bromley, D. B. The psychology of human aging. Baltimore, Md.: Penguin Books, (2nd ed.), 1974. P 110.

The Journal of Social Psychology, 1976, 99, 297-298.

SALIENT ATTITUDES: A TEST OF FISHBEIN'S LINEAR MODEL*[1]

University of Manitoba

JAMES T. MILORD AND RAYMOND P. PERRY

With the use of Fishbein's linear model of attitudes,[2] this experiment was conducted to test whether the relationship between salient attitudes and corresponding beliefs would represent a closer approximation of linearity than a nonsalient attitude-belief relationship. Although the validity of the model has been investigated by Ramsey and Case,[3] the correlations which were obtained provided an index of attitude-belief consistency within *S*s rather than across *S*s. In addition, the attitude objects which were used (various countries) were not particularly salient. It seems reasonable that the predictability of Fishbein's model should increase as the attitude object becomes more salient or relevant to the *S*: e.g., one's university administration or Introductory Psychology professor. It was hypothesized that the correspondence between the elements of Fishbein's equation A_o and $B_i a_i$, would increase as personal relevance to the *S* increases.

The Fishbein model, $A_o = \Sigma B_i a_i$, suggests that an attitude towards an object (A_o) is equal to the sum of the product of beliefs about that object (B_i) and the probability of association (a_i) between each belief and the attitude object. Thus a positive attitude should be reflected in a positive sum of belief-association products.

Forty-five introductory psychology students made attitude ratings of 10 countries, the administration at their university, and their Introductory Psychology professor. *S*s then rated a number of traits that were specific to countries (those used by Ramsey and Case), the administration (pretested), and their Introductory Psychology professors (pretested). Finally, *S*s were required to rate the probability of association between each trait and the

* Received in the Editorial Office, Provincetown, Massachusetts, on March 7, 1975.
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[1] Requests for reprints should be addressed to the first author at the address shown at the end of this article.
[2] Fishbein, M. (Ed.), Readings in Attitude Theory and Measurement. New York: Wiley, 1967.
[3] Ramsey, J. O., & Case, B. Attitude measurement and the linear model. *Psychol. Bull.*, 1970, 74, 185-192.

appropriate attitude objects. All ratings were made on 10 mm scales as in Ramsey and Case.

Each attitude rating (A_o) was correlated with the sum of the belief-association products (ΣBa) for each attitude object. For countries, correlations between attitudes and beliefs ranged from .10 ($p > .05$) to .39 ($p < .01$). The mean correlation for countries was not significant ($r = .247, p > .05$). However, the attitude-belief correlations for administration ($r = .40$) and professor ($r = .64$) were significant ($p < .01$). In comparing r values, it was found that administration was significantly higher than countries ($t = 14.6, df = 44, p < .001$) and that professor was higher than countries ($t = 37.5, df = 44, p < .001$) and administration ($t = 22.8, df = 44, p < .001$).

The confirmation of the central hypothesis suggests that, although the attitude belief relationship can deviate considerably from linearity, this relationship becomes more linear as attitude salience is increased. It is suggested therefore, that a constant be incorporated into the model in order to account for the salience of attitudes and beliefs.

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THE EXPRESSION OF BELIEF IN INTERNAL CONTROL AS A STRATEGIC RESPONSE*

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Many self-report personality instruments fail to control for response bias. Rotter's Internal-External Control (I-E) Scale is, by virtue of the amount of research which has been based upon it, a prominent example.[1] The I-E Scale has high face validity, and findings of modest but reliable correlations with measures of social desirability indicate that responses to it may be biased.[2] The correlational evidence permits the inference that among those identified by the I-E Scale as internals are individuals who have responded strategically on the basis of their perception that belief in internal control is valued more highly in this society than is belief in external control. The present study evaluates this inference experimentally.

Twelve women and six men completed I-E Scale anonymously under individual testing conditions—the No Induction (NI) group. Eleven women and eight men responded under identical conditions, except that they were told by an *E*, identified as a clinical psychologist, that the scale was "a new questionnaire which is designed to diagnose behavioral pathology"—the Induced Favorable Presentation (IFP) condition. IFP *S*s were also scheduled for a future session to discuss their resulting diagnoses. All *S*s, undergraduates enrolled in an introductory psychology course, were urged strongly to respond as honestly as they could. It was hypothesized that the IFP induction would heighten *S*s' motivation to respond in a socially desirable manner. More internal scores for IFP *S*s would then provide evidence of the susceptibility of the I-E Scale to impression management.

Analysis of variance revealed that both male and female *S*s in the IFP

* Received in the Editorial Office, Provincetown, Massachusetts, on March 19, 1975.
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[1] Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. *Psychol. Monog.*, 1966, **80**(1), Whole No. 609.

[2] (*a*) Feather, N. T. Some personality correlates of external control. *Austral. J. Psychol.*, 1967, **19**, 253-260. (*b*) Cone, J. D. Locus of control and social desirability. *J. Consult. & Clin. Psychol.*, 1971, **36**, 449. (*c*) Berzins, J. I. Locus of control in dimensional versus typological perspectives. Paper presented to American Psychological Association meeting, Montreal, Canada, 1973.

condition obtained significantly lower, more internal scores than did NI Ss ($F = 9.01$, $df = 1,33$, $p < .01$). Thus, the experimental hypothesis received strong confirmation.

There are numerous implications of these findings and the more indirect evidence of the potential for contamination of I-E Scale scores by social desirability. Despite the many successes, it is possible that failures of other attempted demonstrations of differences in behavior between groups scoring at opposite extremes on the I-E Scale are attributable to misclassification of individuals on the basis of invalid scores. The use of I-E scores to compare social groups is called into question. Observed differences may reflect differential motivation, as by self-stereotyping, or capability, as a result of testing experience, for favorable self-presentation. For example, men may obtain more internal scores than women because their acceptance of the male sex role more strongly motivates them to present themselves to others as internals.

The demonstrated importance of social desirability response bias suggests the necessity of psychometric improvement of the I-E Scale, as well as other instruments which share this problem. Matching forced-choice alternatives for social desirability, with the use of less transparent measures, such as preference for or performance in skill- *versus* chance-determined tasks, and correcting scores based on indices of socially desirable responding are possibilities that might be explored.

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STEREOTYPES, PROJECTION, AND ATTRACTION*

Ohio University

MARC WAYNER AND SVENN LINDSKOLD[1]

Haire and Grunes reported an experiment in which they observed that college students experienced difficulty in fitting the trait, intelligent, into their stereotype of a factory worker.[2] When writing a personality sketch of a hypothetical factory worker from a brief list of some of his characteristics, they demonstrated various "defenses" in dealing with the discrepant trait, intelligent. Haire and Grunes classified these defenses as denial, encapsulation and distortion, change in organization, and recognition of incongruity. When the list of characteristics did not include intelligent, fewer defenses were used.

The effect is an easy one to replicate in a classroom, and the second author has done so a number of times. In their sketches the students seemed to project their own attitudes and motivation more onto the intelligent factory worker than on the factory worker with all the same characteristics except intelligent. That is, they made the intelligent factory worker more similar to themselves in their descriptions. He was sometimes described as considering returning to college, as being a college graduate unable to find other work, as a person who would advance himself in the company or union, and so forth. Such perception of similarity would be expected to induce attraction.[3]

To test this hypothesis 256 students from several social psychology classes over several years were first asked to write a sketch of the person with the listed characteristics and then, when finished, to turn to the next page and rate him on a 12-item semantic differential form. Four adjective pairs were drawn from those usually loading heavily on each of the Evaluative, Potency, and Activity dimensions. It was hypothesized that the

* Received in the Editorial Office, Provincetown, Massachusetts, on April 4, 1975.
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[1] Reprints are available from the second author at the address shown at the end of this article.

[2] Haire, M., & Grunes, W. F. Perceptual defenses: Processes protecting an organized perception of another personality. *Hum. Relat.*, 1950, 3, 403-412.

[3] Byrne, D. Attitudes and attraction. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 4). New York: Academic Press, 1969.

sum of the ratings on the Evaluative items (good-bad, honest-dishonest, wise-foolish, and kind-cruel) would be greater for those *S*s who wrote about the factory worker who possessed the characteristic, intelligent, than for the *S*s who wrote from the list without intelligent.

One-hundred twenty-five *S*s wrote from the list containing intelligent, and 121 wrote from the list lacking intelligent. Mean Evaluative ratings for the two groups were 21.05 and 19.75, respectively [$t(254) = 2.88$, $p < .01$, two-tailed]. There was no difference on Potency ratings, $p > .10$, and a trend [$t(254) = 1.71$, $p < .10$, two-tailed], for the intelligent worker to be viewed as more Active than the worker not described as intelligent. The factory worker stereotype may include an aspect of relative passivity, as well as relative dislike.

In brief summary, a stereotype may be disrupted by a bit of discrepant information. If, from this information, the target person is assumed to be more similar to the perceiver than is the intact stereotype, the perceiver will project some of his own characteristics onto the target, who then will be more favorably evaluated than the stereotype.

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DO SUBJECTS UNDERSTAND THE CHOICE DILEMMA QUESTIONNAIRE?*

Iona College

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This study was undertaken to assess the comprehensibility of the Kogan and Wallach[1] choice dilemma questionnaire commonly employed in risky-shift investigations. When confronted with this instrument in the typical risky-shift experiment, an *S*'s pretest task is to place himself in the position of the central character described in a two-alternative dilemma and indicate the minimum odds for success he would require for the risky alternative before he would recommend it over the cautious one. Thus, the lower an *S*'s score, the more risky his pretest position, presumably. The author's experience,[2] however, suggests that some *S*'s may fail in comprehending this inverse relationship between probability and risk taking when they are provided with standard pretest instructions. There is some doubt, then, as to the validity of pretest scores and, therefore, on the amount—and, conceivably, direction—of risky shifts found in previous research.

*S*s were 30 male and 29 female undergraduate students at Iona College. After standard pretest instructions,[1] *S*s individually responded to one (Mr. G) of the dilemmas taken verbatim from the Kogan and Wallach set. They were given five minutes for the task. After completion, *S* were asked the following: "Suppose there were two students who completed the task you just finished. Let's call them A and B. Suppose that A checked 1 chance in 10 and B checked 7 chances in 10. Of the two, who took the greater risk?" *S*s indicated their beliefs in private by checking one of three alternatives—A, B, or U (for unsure).

Of the 59 *S*s, 18 (30%) of them gave "incorrect" responses to the validity check (16 B's and 2 U's). The differences in responses for males (10 B's out of 30—33%) and females (6 B's and 2 U's out of 29—28%) were insig-

* Received in the Editorial Office, Provincetown, Massachusetts, on April 9, 1975.
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[1] Kogan, N., & Wallach, M. A. Risk-taking: A Study in Cognition and Personality. New York: Holt, Rinehart & Winston, 1964.

[2] Reingen, P. H. Phenomena of shifts along a risk dimension tested with established groups. *J. Soc. Psychol.*, 1974, 94, 295-296.

nificant ($\chi^2 = .230$, $df = 1$, $p > .10$). In terms of risk-taking scores, Ss with "correct" responses to the validity check did not differ significantly from Ss with "incorrect" ones ($t = .27$, $df = 57$, $p > .10$). A within-sex analysis yielded similar results ($p > .10$).

If Ss' beliefs—A, B, or U—are construed as validity checks on their pretest risk-taking positions, the internal validity of the choice dilemma stimuli would seem to be questionable. The results of this study clearly suggest that the standard instructions accompanying the Kogan and Wallach instrument are inadequate. The number of groups confused Ss can affect is potentially very large; it takes only one invalid member to contaminate a group, to render its amount and/or direction of shift suspect. Since group discussion should lead to further task clarification, it is altogether plausible, for example, that a risky shift may be due in part to an invalid member's correction of his original anchor-point mistake. A potential bias as large as that identified here should be dealt with systematically in future risky-shift research.

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CURRENT PROBLEMS AND RESOLUTIONS

Under this heading appear summaries of data which, in 500 words or less, would increase our comprehension of socially compelling problems, hopefully move us somewhat closer to a solution, and clearly show promise of transcending their own origin in the Zeitgeist; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, **99**, 305-306.

LOCUS OF CONTROL AND STUDENT REACTION TO THE WATERGATE BREAK-IN*[1]

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At the time of the present investigation in April 1973 there was mixed public reaction to the 1972 break-in at the Democratic National Committee headquarters in the Watergate buildings, Washington, D. C. The aim of the investigation was to determine whether an individual difference variable—internal-external control of reinforcement (I-E)—could be used to predict accurately the nature of student reaction to the burglary. It was expected that externals would react more unfavorably than internals to Watergate-related actions of the Nixon administration. This prediction was based upon earlier research which suggests that externals respond with a more intense suspiciousness toward the actions of various authorities, including political figures, than do internals.[2]

Ninety-six students in two undergraduate psychology courses at the University of Maine listed their political party affiliation and completed a battery of tests, including Levenson's I-E Scale, the Marlowe-Crowne Social Desirability Scale, and an 18-item Watergate Affair Questionnaire.[3]

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[1] The authors express appreciation to Dr. Joel A. Gold and to Leona M. Ryckman for their constructive suggestions on an earlier draft of the article.
[2] Hamaker, J. H., Geller, J. D., & Rotter, J. B. Interpersonal trust, internal-external control, and the Warren Commission Report. *J. Personal. & Soc. Psychol.*, 1968, **9**, 210-215.
[3] Levenson, H. Distinctions within the concept of internal-external control. The develop-

Correlational analyses indicated that the *Ss*' social desirability tendencies did not influence their responses to the questionnaire. A chi-square analysis showed no relationship between I-E and party affiliation. Answers to several items were significantly affected by differences in party affiliation, however. For example, fewer Republicans than Democrats thought that President Nixon knew about the plan to "bug" the Democratic headquarters from the very beginning. There were no I-E differences for this item. Republicans also had more confidence in the honesty of Nixon and other government officials both before and after Watergate than did Democrats. Internals also had more confidence in the honesty of Nixon and the other officials both before and after Watergate than did externals. In addition, internals reported having more knowledge of the affair than externals. They were also more certain than externals that the plan did not originate with Nixon. Internals were also more optimistic than externals about the possibility of constructive change in the federal government as a result of Watergate. In comparison to externals, internals also believed that the penalties for the Presidential aides should be more severe, assuming they were convicted of the crime. While most internals and externals also believed that the president should be impeached if he was found guilty of wrong-doing, externals were much more certain that he should be impeached, if convicted, than internals. The foregoing analyses were conducted with *t* tests, with probability levels set at .05.

I-E was a more effective predictor of political attitudes than party affiliation, for this sample on these issues. There were significant differences in the responding of internals and externals on 11 of the 18 items, while differences in the responding of Democrats and Republicans were found on only five of the 18 items. A chi-square analysis of the difference in the number of significant findings between I-E and political affiliation yielded a result which was significant beyond the .001 probability level.

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ment of a new scale. Paper presented at the American Psychological Association, Honolulu, Hawaii, 1972. Crowne, D. P., & Marlowe, D. A new scale of social desirability independent of psychopathology. *J. Consult. Psychol.*, 1960, **24**, 349-354. For a complete list of the scale items, as well as the procedures used to classify *Ss* on the locus of control and social desirability dimensions, write to the first author at the address shown at the end of this article.

The Journal of Social Psychology, 1976, **99**, 307-308.

HUMAN NATURE IDEOLOGY AND DEMOCRATIC POWER IDEOLOGY*

University of Notre Dame

GEORGE F. BISHOP

Previous research by Rosenberg[1] has shown that an individual's basic assumptions about human nature tend to be significantly associated with trust in politicians and the political process: those Americans holding more unfavorable views of human nature are more cynical in political ideology. The present research attempts to determine the utility of a short-form measure of human nature ideology, based upon Wrightman's[2] summary of philosophies of human nature, for predicting a person's democratic power ideology.

In November 1973 self-administered questionnaire data for the present study were provided by 268 male and female *S*s (median age = 20) solicited from the University of Notre Dame and St. Mary's College community in South Bend, Indiana. The following four dichotomous items (each being preceded by the stem, "Which one of the following two statements comes closer to your personal philosophy of human nature?") were used to measure human nature ideology: (*a*) "Most people are basically trustworthy, honest, and responsible" *vs.* "Most people are basically untrustworthy, dishonest, and irresponsible;" (*b*) "Most people are basically selfish and unconcerned about others" *vs.* "Most people are basically unselfish and sincerely interested in others;" (*c*) "Most people are basically independent and tend to maintain their beliefs in the face of group pressures" *vs.* "Most people are basically conformists and tend to give in to the pressures of the group;" and (*d*) "Most people are basically rational, have freedom of choice, and can control their outcomes in the world" *vs.* "Most people are basically irrational, lack freedom of choice, and cannot control their outcomes in the world." Democratic power ideology was measured by the

* Received in the Editorial Office, Provincetown, Massachusetts, on April 9, 1975.
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[1] Rosenberg, M. Misanthropy and political ideology. *Amer. Soc. Rev.*, 1956, **21**, 690-695.
[2] Wrightsman, L. S. Social Psychology in the Seventies. Belmont, Calif.: Wadsworth, 1972.

following item adopted from a recent national survey by Yankelovich[3]: "Which one of the following two statements comes closer to your general point of view about our present system of government? 'Our present system of government is largely democratic. Sooner or later the views of the people make themselves felt in important matters' *vs.* 'Our present system of government is democratic in name only. The special interests run things and the mass of people are propagandized that what they think really counts.' "

The results show that those students who felt our present system of government is largely democratic were more likely than those who felt it is democratic in name only to believe that most people are basically trustworthy (Yule's $Q = .65$, $p < .001$), unselfish ($Q = .50$, $p < .01$), independent ($Q = .42$, $p < .05$), and rational ($Q = .69$, $p < .001$). Further analysis provides some partial evidence for the discriminant validity of the human nature ideology construct: none of the human nature items was significantly related to political party identification, liberal or conservative self-identification, or reported presidential vote for McGovern or Nixon in 1972, though each of the latter variables was significantly associated with democratic power ideology. There were no significant correlations between human nature ideology and the background variable of sex; class level and beliefs about human nature, however, were significantly related, with upperclassmen (juniors and seniors) being more likely than underclassmen (freshmen and sophomores) to believe that most people are basically selfish ($X^2 = 9.54$, $df = 3$, $p < .05$), conformist ($X^2 = 8.95$, $df = 3$, $p < .05$), and irrational ($X^2 = 8.59$, $df = 3$, $p < .05$). These results suggest that the short-form measure of human nature ideology is a useful predictor of a person's democratic power ideology, a predictor which is apparently independent of Democratic-Republican and liberal-conservative dimensions.

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[3] Yankelovich, D. The Changing Values on Campus. New York: Washington Square Press, 1972.

The Journal of Social Psychology, 1976, 99, 309-310.

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AUTHOR INDEX

Abend, Arie 171
Aronovitch, Charles D. 207
Barefoot, John C. 51
Berry, J. Steven 295
Bick, Peter 151
Bishop, George F. 307
Boulanger, Fabian 145
Braithwaite, John B. 241
Braithwaite, Valerie A. 241
Brewer, Barbara 115
Buchanan, Douglas R. 187
Cattell, Raymond B. 3
Cherulnik, Paul D. 299
Chirer, Amos 171
Cohen, Murray W. 143
Cooper, Merri-Ann 147
Cusimano, John 179
Dabelko, David D. 283
Dekar, Patricia 63
Duffield, Beverly J. 233
Edelsky, Carole 97
Eitzen, D. Stanley 203
Finch, M. D. 251
Fischer, Donald G. 145
Foot, Hugh C. 105
Forgas, Joseph P. 37
Gallimore, Ronald 141
Goldman, Morton 187
Gottlieb, J. 293
Gray, Louis N. 221
Grota, Philip 29
Guild, Paul 51
Hansson, Robert O. 233, 295
Harris, Mary B. 193
Hartnett, John J. 293
Hayes, R. L. 293
Hofman, John E. 75
Izzett, Richard R. 125
Johnson, Jerry 141
Juhnke, Ralph 187
Kassinove, Howard 43
Kowalczyk, Mary A. 221
Lancaster, Larry 87
Larsen Knud S. 87
Larsen, Kurt 87
Leginski, Walter 125
Lesh, William 87
Levenson, Hanna 57
Levine, Stephen 273
Liebling, Barry A. 259
Lindskold, Svenn 301
Little, Judith 149
Loewenthal, Kate 151
Lomranz, Jacob 21
Mahoney, E. R. 251
Malikiosi, Maria X. 13
McDowell, Kenneth 145
Meredith, Gerald M. 157
Michelini, Ronald L. 179
Milord, James T. 297
Passalacqua, Robert 179
Perry, Raymond P. 297
Ramirez, Albert 149
Ray, John J. 163
Redding, John 87
Regan, Judith Weiner 63
Reinger, Peter H. 303
Ross, Wesley 273
Rouhana, Nadim 75
Ryckman, Richard M. 305, 13
Samerotte, George C. 193
Scheidt, Fredrick J. 291
Shaver, Phillip 259
Sherman, Martin F. 299, 305
Sidana, Usha R. 289
Singh, Ramadhar 289
Smith, D'rinda Jo 57
Smith Mary E. 291
Solomon, Linda Zener 29
Sosis, Ruth Hyland 147
Srivastava, Prabha 289
Stephens, Richard 273
Strickland, Lloyd H. 51
Thomas, David R. 167
Thurber, Steven 139
Turnbull, Allen 51
Van Broembsen, Maximilian H. 221
Vaughan, Graham M. 73
Wales, Elizabeth 115
Wasserman, Theodore 43
Wayner, Marc 301
Western, John S. 241
White, Cheryl 87
Williams, J. Sherwood 221
Wilson, Paul R. 241
Yinon, Yoel 171

TABLE OF CONTENTS

Personality differences between young New Zealanders and Americans 3
By Graham M. Vaughan and Raymond B. Cattell

Occupational stereotyping in American and Greek cultures 13
By Maria X. Malikiosi and Richard M. Ryckman

Cultural variations in personal space 21
By Jacob Lomranz

Imitation of a helpful model: The effect of level of emergency 29
By Linda Zener Solomon and Philip Grota

An unobtrusive study of reactions to national stereotypes in four European countries 37
By Joseph P. Forgas

Effects of type of recommendation, attire, and perceived expertise on parental compliance 43
By Theodore Wasserman and Howard Kassinove

The effect of severity of exertion on liking for a cause 51
By John C. Barefoot, Lloyd H. Strickland, Paul Guild, and Allen Turnbull

Reactions to humor as a function of reference group and dogmatism 57
By D'Rinda Jo Smith and Hanna Levenson

Dissonance from counterattitudinal advocacy to liked and disliked targets 63
By Judith Weiner Regan and Patricia Dekar

Young Arabs in Israel: Some aspects of a conflicted social identity 75
By John E. Hofman and Nadim Rouhana

Approval seeking, situational pressures, and the willingness to administer shock to a victim 87
By Knud S. Larsen, Larry Lancaster, William Lesh, John Redding, Cheryl White, and Kurt S. Larsen

Subjective reactions to sex-linked language 97
By Carole Edelsky

Retaliation and the attribution of responsibility for unfavorable evaluations of performance 105
By Hugh C. Foot

Graffiti in the 1970's 115
By Elizabeth Wales and Barbara Brewer

The selection and evaluation of interpersonal distances as a function of linguistic styles 125
Walter Leginski and Richard R. Izzett

CROSS-CULTURAL NOTES

Changes in Navajo responses to the Draw-A-Man Test 139
By Steven Thurber

Statistical variance as an index of cultural differences 141
By Jerry Johnson and Ronald Gallimore

REPLICATIONS AND REFINEMENTS

Eidetic imagery *versus* language skills 143
By Murray W. Cohen

Initial position, ratio of arguments, and individual shifts in decision 145
By Donald G. Fischer, Kenneth McDowell, and Fabian Boulanger

Internal-external control and attribution of responsibility for a positive accident 147
By Ruth Hyland and Merri-Ann Cooper

Ethnicity of subject and test administrator: Their effect on self-esteem 149
By Judith Little and Albert Ramirez

Silence and role uncertainty 151
By Peter Bick and Kate Loewenthal

BOOKS RECENTLY RECEIVED 153

Interpersonal needs of Japanese-American and Caucasian-American college students in Hawaii 157
By Gerald M. Meredith

Authoritarianism and racial prejudice in Australia: A reply to Thomas 163
By John J. Ray

Authoritarianism in Queensland: A reply to Ray 167
By David R. Thomas

Prejudice towards Israelis of Oriental origin among Israelis of Western origin 171
By Yoel Yinon, Arie Abend, and Amos Chirer

Effects of seating arrangement on group participation 179
By Ronald L. Michelini, Robert Passalacqua, and John Cusimano

Violation of personal space as a function of sex 187
By Douglas R. Buchanan, Ralph Juhnke, and Morton Goldman

The effects of actual and attempted theft, need, and a previous favor on altruism .. 193
By Mary B. Harris and George C. Samerotte

The self-concept of delinquents in a behavior modification treatment program 203
By D. Stanley Eitzen

The voice of personality: Stereotyped judgments and their relation to voice quality and sex of speaker 207
By Charles D. Aronovitch

On the social law of effect 221
By Louis N. Gray, Maximilian H. Van Broembsen, Mary A. Kowalczyk, and J. Sherwood Williams

Physical attractiveness and the attribution of epilepsy 233
By Robert O. Hansson and Beverly J. Duffield

The validity of Charles Reich's typology of "consciousness" in modern society 241
By John B. Braithwaite, Valerie A. Braithwaite, Paul R. Wilson, and John S. Western

Body-cathexis and self-esteem: A reanalysis of the differential contribution of specific body aspects 251
By E. R. Mahoney and M. D. Finch

Explorations in the drive theory of social facilitation 259
By Phillip Shaver and Barry A. Liebling

Street addict values: A factor analytic study 273
By Richard Stephens, Stephen Levine, and Wesley Ross

Reference group theory, social comparison theory, and the study of politics 283
By David D. Dabelko

CROSS-CULTURAL NOTES

Social agents in children's happiness 289
By Usha R. Sidana, Ramadhar Singh, and Prabha Srivastava

REPLICATIONS AND REFINEMENTS

Birth-order compatibility and same-sex dyads: A replication 291
By Fredrick J. Scheidt and Mary E. Smith

Social facilitation theory and experimenter attractiveness 293
By John J. Hartnett, J. Gottlieb, and R. L. Hayes

Birth order and institutionalization of the aged 295
By J. Steven Berry and Robert O. Hansson

Salient attitudes: A test of Fishbein's linear model 297
By James T. Milord and Raymond P. Perry

The expression of belief in internal control as a strategic response 299
By Paul D. Cherulnik and Martin F. Sherman

Stereotypes, projection, and attraction 301
By Marc Wayner and Svenn Lindskold

Do subjects understand the choice dilemma questionnaire? 303
By Peter H. Reingen

CURRENT PROBLEMS AND RESOLUTIONS

Locus of control and student reaction to the Watergate break-in 305
By Richard M. Ryckman and Martin F. Sherman

Human nature ideology and democratic power ideology 307
By George F. Bishop

BOOKS RECENTLY RECEIVED 309

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5. A study of the mental development of children with lesion in the central nervous system—E. E. LORD
6. An experimental study upon three hundred school children over a six-year period—N. D. M. HIRSCH

VOLUME 8—July-December, 1930

1. The amount and nature of activities of newborn infants under constant external stimulating conditions during the first ten days of life—O. C. IRWIN
2. Race and social differences in performance tests—S. D. PORTEUS, *et al.*
3. Language and growth: The relative efficacy of early and deferred vocabulary training, studied by the method of co-twin control—L. C. STRAYER
4. Eye-movements and optic nystagmus in early infancy—J. M. MCGINNIS
5 & 6. Reactions of kindergarten, first-, and second-grade children to constructive play materials—L. FARWELL

VOLUME 9—January-June, 1931

1 & 2. The status of the first-born with special reference to intelligence—H. H. HSIAO
3 & 4. An experimental study of bright, average, and dull children at the four-year mental level—H. P. DAVIDSON
5. An historical, critical, and experimental study of the Seashore-Kwalwasser test battery—P. R. FARNSWORTH
6. A comparison of difficulty and improvement in the learning of bright and dull children in reproducing a descriptive selection—F. T. WILSON

VOLUME 10—July-December, 1931

1. A comparative study of a group of southern white and negro infants—M. B. MCGRAW
2 & 3. An experimental study of prehension in infants by means of systematic cinema records—H. M. HALVERSON
4. The limits of learning ability in kittens—A. M. SHUEY
5 & 6. The effect of habit interference upon performance in maze learning—O. W. ALM

VOLUME 11—January-June, 1932

. General factors in transfer of training in the white rat—T. A. JACKSON
. The effect of color on visual apprehension and perception—M. A. TINKER
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. A critical study of two lists of best books for children—F. K. SHUTTLEWORTH
& 6. Measuring human energy cost in industry: A general guide to the literature—R. M. PAGE

VOLUME 12—July-December, 1932

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& 4. The growth of adaptive behavior in infants: An experimental study at seven age levels—H. M. RICHARDSON
& 6. Differential reactions to taste and temperature stimuli in newborn infants—K. JENSEN

VOLUME 13—January-June, 1933

A critique of sublimation in males: A study of forty superior single men—W. S. TAYLOR
A study of the nature, measurement, and determination of hand preference—H. L. KOCH, *et al.*
The growth and decline of intelligence: A study of a homogeneous group between the ages of ten and sixty—H. E. JONES AND H. S. CONRAD
The relation between the complexity of the habit to be acquired and the form of the learning curve in young children—M. L. MATTSON
Eating habits in relation to personality development of two- and three-year-old children: A study of sixty-nine children in two nursery schools—A. A. ELIOT
Coordinating mechanisms of the spinal cord—O. C. INGEBRITSEN

Genetic Psychology Monographs *(continued)*

VOLUME 14—July-December, 1933

1. Mental growth during the first three years: A developmental study of sixty-one children by repeated tests—N. BAYLEY
2. A study of triplets: including theories of their possible genetic relationships—F. N. ANDERSON AND N. V. SCHEIDEMANN
3. The objective measurement of emotional reactions—H. V. GASKILL
4. Development of behavior in the fetal cat—J. D. CORONIOS
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6. The effect of early and delayed practice on memory and motor performances studied by the method of co-twin control—J. R. HILGARD

VOLUME 15—January-June, 1934

1. Studies in the psychology of tone and music—P. R. FARNSWORTH
2. Motor learning of children in equilibrium in relation to nutrition—E. L. BEEBE
3. Discrimination limens of pattern and size in the goldfish *Carassius auratus*—J. B. ROWLEY
4. Limits of learning ability in the white rat and the guinea pig—B. F. RIESS
5 & 6. The limits of learning ability in rhesus monkeys—H. A. FJELD

VOLUME 16—July-December, 1934

1. A statistical study of ratings on the California Behavior Inventory for Nursery-School Children—H. S. CONRAD
2. An eye-movement study of objective examination questions—A. FRANDSEN
3. An experimental study of constitutional types—O. KLINEBERG, S. E. ASCH, AND H. BLOCK
4. The development of a battery of objective group tests of manual laterality, with the results of their application to 1300 children—W. N. DUROST
5 & 6. An experimental study in the prenatal guinea-pig of the origin and development of reflexes and patterns of behavior in relation to the stimulation of specific receptor areas during the period of active fetal life—L. CARMICHAEL

VOLUME 17—January-December, 1935

1. Organization of behavior in the albino rat—R. L. THORNDIKE
2. Brightness discrimination in the rhesus monkey—M. P. CRAWFORD
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4. Nature-nurture and intelligence—A. M. LEAHY
5. On intelligence of epileptic children—E. B. SULLIVAN AND L. GAHAGAN
6. A study of the play of children of preschool age by an unobserved observer—D. L. COCKRELL

VOLUME 18—January-December, 1936

1. Sex differences in variational tendency—Q. MCNEMAR AND L. M. TERMAN
2. The process of learning to dress among nursery-school children—C. B. KEY, M. R. WHITE, M. P. HONZIK, A. B. HEINEY, AND D. ERWIN
3. A study of the present social status of a group of adults, who, when they were in elementary schools, were classified as mentally deficient—W. R. BALLER
4. The influence of specific experience upon mental organizations—A. ANASTASI
5 & 6. Studies in aggressiveness—L. BENDER, S. KEISER, AND P. SCHILDER

VOLUME 19—January-December, 1937

1. Psychological bases of self-mutilation—C. DABROWSKI
2. Masculine temperament and secondary sex characteristics: A study of the relationship between psychological and physical measures of masculinity—H. GILKINSON
3. A psychological study of forty unmarried mothers—R. D. NOTTINGHAM
4. Behavior problems in the children of psychotic and criminal parents—L. BENDER
5. Domination and integration in the social behavior of young children in an experimental play situation—H. H. ANDERSON
6. The sequential patterning of prone progression in the human infant—L. B. AMES

VOLUME 20—January-December, 1938

1. The relationship between characteristics of personality and physique in adolescents—P. S. DE Q. CABOT
2. Behavior problems of elementary school children: A descriptive and comparative study—I. Y. MASTEN
3. Graphic representation of a man by four-year-old children in nine prescribed drawing situations—P. F. GRIDLEY
4. Differences between two groups of adult criminals—R. S. TOLMAN
5. A comparative study by means of the Rorschach method of personality development in twenty pairs of identical twins—E. TROUP
6. Individual differences in the facial expressive behavior of preschool children: A study by the time-sampling method—C. SWAN

VOLUME 21—January-December, 1939

1. An experimental analysis of "level of aspiration"—R. GOULD
2. Some light on the problem of bilingualism as found from a study of the progress in mastery of English among pre-school children of non-American ancestry in Hawaii—M. E. SMITH
3. Domination and social integration in the behavior of kindergarten children and teachers—H. H. ANDERSON
4. The capacity of the rhesus and cebus monkey and the gibbon to acquire differential response to complex visual stimuli—W. E. GALT
5. The social-sex development of children—E. H. CAMPBELL

VOLUME 22—January-December, 1940

1. Measuring human relations: An introduction to the study of the interaction of individuals—E. D. CHAPPLE
2. Aggressive behavior in young children and children's attitudes toward aggression—M. D. FITE
3. Student attitudes toward religion—E. NELSON
4. The prediction of the outcome-on-furlough of dementia praecox patients—J. S. JACOB
5. Significant characteristics of preschool children as located in the Conrad inventory—K. H. READ
6. Learning by children at noon-meal in a nursery school: Ten "good" eaters and ten "poor" eaters—J. B. MCCAY, E. B. WARING, AND P. J. KRUSE
7. Studies in the interpretation of play: I. Clinical observation of play disruption in young children—E. H. ERIKSON

VOLUME 23—January-June, 1941

1. An analysis of certain variables in a developmental study of language—F. M. YOUNG
2. Infant development under conditions of restricted practice and of minimum social stimulation—W. DENNIS
3. An analysis of the mental factors of various age groups from nine to sixty—B. BALINSKY
4. Factors influencing performance on group and individual tests of intelligence: I. Rate of work—M. W. BENNETT
5. Individual differences in apperceptive reaction: A study of the response of preschool children to pictures—E. W. AMEN

VOLUME 24—July-December, 1941

1. Twins *T* and *C* from infancy to adolescence: A biogenetic study of individual differences by the method of co-twin control—A. GESELL AND H. THOMPSON
2. Finger nail-biting: Its incipiency, incidence, and amelioration—A. L. BILLIG
3. An experimental study of the factors of maturation and practice in the behavioral development of the embryo of the frog, *Rana pipiens*—A. FROMME
4. The Fels child behavior scales—T. W. RICHARDS AND M. P. SIMONS
5. Measurement of the size of general English vocabulary through the elementary grades and high school—M. K. SMITH
6. Stereotypes in the field of musical eminence—P. R. FARNSWORTH

VOLUME 25—January-June, 1942

1. A study of factors determining family size in a selected professional group—J. C. FLANAGAN
2. A genetic study of geometrical-optical illusions—A. WALTERS
3. Interpretation of behavior-ratings in terms of favorable and unfavorable deviations: A study of scores from the Read-Conrad Behavior Inventory—K. H. READ AND H. S. CONRAD
4. Are there any innate behavior tendencies?—J. B. SCHOOLLAND
5. An investigation of the intelligibility of the speech of the deaf—C. V. HUDGINS AND F. C. NUMBERS

Genetic Psychology Monographs *(continued)*

VOLUME 26—July-December, 1942

1. The critical frequency limen for visual flicker in children between the ages of 6 and 18—V. L. MILLER
   Some factors determining handedness in the white rat—K. L. WENTWORTH
2. Motivation and behavior—E. FRENKEL-BRUNSWIK

VOLUME 27—January-June, 1943

1. Comparison of children's personality traits, attitudes, and intelligence with parental occupation—N. R. MADDY
2. A comparative study of mental functioning patterns of problem and non-problem children seven, eight, and nine years of age—M. L. PIGNATELLI

VOLUME 28—July-December, 1943

1. Separation anxiety in young children: A study of hospital cases—H. EDELSTON
2. Correlates of vocational preferences—W. A. BRADLEY, JR.

VOLUME 29—January-June, 1944

1. Mental changes after bilateral prefrontal lobotomy—S. D. PORTEUS AND R. D. KEPNER
2. A twin-controlled experiment on the learning of auxiliary languages—B. PRICE, W. J. KOSTIR, AND W. M. TAYLOR

VOLUME 30—July-December, 1944

1. A method of administering and evaluating the thematic appreciation test in group situations—R. M. CLARK
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VOLUME 31—January-June, 1945

1. The evolution of intelligent behavior in rhesus monkeys—B. WEINSTEIN
2. Perceptual behavior of brain-injured, mentally defective children: An experimental study by means of the Rorschach technique—H. WERNER

VOLUME 32—July-December, 1945

1. A clinical study of sentiments: I.—H. A. MURRAY AND C. D. MORGAN
2. A clinical study of sentiments: II.—H. A. MURRAY AND C. D. MORGAN

VOLUME 33—January-June, 1946

1. Interpretation of spontaneous drawings and paintings—T. S. WAEHNER
   Preferences for sex symbols and their personality correlates—K. FRANCK
2. Outstanding traits: In a selected college group, with some reference to career interests and war records—F. L. WELLS AND W. L. WOODS

VOLUME 34—July-December, 1946

1. The relation of emotional adjustment to intellectual function—J. L. DESPERT AND H. O. PIERCE
   The smiling response: A contribution to the ontogenesis of social relations—R. A. SPITZ
2. Finger-painting and personality diagnosis—P. J. NAPOLI

VOLUME 35—January-June, 1947

1. The thematic apperception technique in the study of culture-personality relations—W. E. HENRY
2. A continuation study of anxiety reactions in young children by means of a projective technique—M. DORKEY AND E. W. AMEN
   A study of the vocational interest trends of secondary school and college women—A. M. CAWLEY

VOLUME 36—July-December, 1947

1. Maze test validation and psychosurgery—S. D. PORTEUS AND H. N. PETERS
2. The diagnostic implications of Rorschach's test in case studies of mental defectives—I. JOLLES

VOLUME 37—January-June, 1948

1. The radio day time serial: A symbolic analysis—W. L. WARNER AND W. E. HENRY
   The relation of personality characteristics and response to verbal approval in a learning task—G. L. GRACE
2. The mechanism of vision: XVIII. Effects of destroying the visual "associative areas" of the monkey—K. S. LASHLEY
   A study of the relationship between handwriting and personality variables—P. CASTELNUOVA-TEDESCO

VOLUME 38—July-December, 1948

1. Modern language learning: The intensive course as sponsored by the United States Army, and implications for the undergraduate course of study—M. LIND
   Conflict: A study of some interactions between appetite and aversion in the white rat—M. A. TOLCOTT
2. Schizophrenia and the *MAPS* test: A study of certain formal psycho-social aspects of fantasy production in schizophrenia as revealed by performance on the Make a Picture Story (*MAPS*) Test—E. S. SHNEIDMAN
   A study of the transmission of authority patterns in the family—H. L. INGERSOLL

VOLUME 39—January-June, 1949

1. A study of the psychoanalytic theory of psychosexual development—G. S. BLUM
   The assessment of parental attitudes in relation to child adjustment—E. J. SHOBEN, JR.
2. Qualitative differences in the vocabulary responses of normals and abnormals—H. FEIFEL
   The relative effectiveness of motion and still pictures as stimuli for eliciting fantasy stories about adolescent-parent relationships—P. E. EISERER
   The organization of hereditary maze-brightness and maze-dullness—L. V. SEARLE

VOLUME 40—July-December, 1949

1. An experimental study of what young school children expect from their teachers—B. BIBER AND C. LEWIS
   A study of the relative effects of age and of test difficulty upon factor patterns—H. A. CURTIS
   A projective experiment using incomplete stories with multiple choice endings—J. K. SEATON
2. Effects of sex role and social status on the early adolescent personality—E. MILNER
   Social perceptions and attitudes of children—M. RADKE, H. TRAGER, AND H. DAVIS

VOLUME 41—January-June, 1950

1. Some psychological and educational aspects of pediatric practice: A study of well-baby clinics—L. H. BLUM
   One-trial learning in the domestic rat—B. B. HUDSON
   An introduction to the principles of scientific psychoanalysis—A. ELLIS
2. Awareness of racial differences by preschool children in Hawaii—D. V. SPRINGER
   Age trends in children's evaluation of teacher-approved and teacher-disapproved behavior—S. L. WITRYOL
   The relationship between level of vocational aspiration and certain personal data: A study of some traits and influences bearing on the prestige level of vocational choice—J. STUBBINS

VOLUME 42—July-December, 1950

1. Personality patterns of suicidal mental hospital patients—N. L. FARBEROW
   Sex-rôle identification in young children in two diverse social groups—M. RABBAN
2. A study of the influence of the social field on individual behavior: As revealed in the expression of hostility and warmth by neurotics and paranoid schizophrenics in discussion group situations—D. SHAPIRO
   An experimental study of avoidance—R. F. HEFFERLINE

VOLUME 43—January-June, 1951

1. A study of copying ability in children—E. A. TOWNSEND
   Prestige motivation of gifted children—D. P. AUSUBEL
2. A psychological study of physical scientists—A. ROE

VOLUME 44—July-December, 1951

1. The organization of hostility controls in various personality structures—S. FISHER AND E. HINDS
   Children and radio: A study of listeners and non-listeners to various types of radio programs in terms of selective ability, attitude, and behavior measures—E. A. RICCIUTI
2. Quantitative expression in young children—W. E. MARTIN
   The use of magnetic devices in the collection and analysis of the preverbal utterances of an infant—A. W. LYNIP

VOLUME 45—January-June, 1952

1. Japanese-American personality and acculturation—W. CAUDILL
2. A statistical study of the Freudian theory of levels of psychosexual development—C. A. BARNES
   Personality characteristics of selected disability groups—D. N. WIENER

Genetic Psychology Monographs *(continued)*

VOLUME 46—July-December, 1952

The relationship of social status, intelligence, and sex of ten- and eleven-year-old children to an awareness of poverty—F. J. ESTVAN

An empirical study of the castration and Oedipus complexes—S. M. FRIEDMAN

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A comparison of formal and content factors in the diagnostic testing of schizophrenia—M. SHERMAN

VOLUME 47—January-June, 1953

Ability and accomplishment of persons earlier judged mentally deficient—D. C. CHARLES

Variations in the consistency of the behavioral meaning of personality test scores—M. KORNREICH

Some child-rearing antecedents of aggression and dependency in young children—R. R. SEARS, *et al.*

Symptom correlates for descriptive diagnosis—J. R. WITTENBORN, *et al.*

VOLUME 48—July-December, 1953

Age and mental abilities: A longitudinal study—W. A. OWENS, JR.

The development of a personality questionnaire for drinkers—P. J. HAMPTON

Personality and physical disease: A test of the Dunbar hypothesis applied to diabetes mellitus and rheumatic fever—D. H. CROWELL

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A study of the effects of color on Rorschach responses—G. G. BRODY

VOLUME 49—January-June, 1954

Factors underlying major reading disabilities at the college level—J. A. HOLMES

Parent behavior toward first and second children—J. K. LASKO

Social-status and intelligence: An experimental study of certain cultural determinants of measured intelligence—E. A. HAGGARD

Certain determinants and correlates of authoritarianism—S. SIEGEL

Personalities in faces: I. An experiment in social perceiving—P. F. SECORD, W. F. DUKES, AND W. BEVAN

VOLUME 50—July-December, 1954

A study of the relationship between play patterns and anxiety in young children—E. W. AMEN AND N. RENISON

Operational exploration of the conceptual self system and of the interaction between frames of reference—M. EDELSON AND A. E. JONES

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The relation of cortical potentials to perceptual functions—C. CHYATTE

The import for clinical psychology of the use of tests derived from theories about infantile sexuality and adult character—D. W. MILES

Measuring personality in developmental terms: The Personal Preference Scale.—M. H. KROUT AND J. K. TABIN

VOLUME 51—January-June, 1955

Some relations between techniques of feeding and training during infancy and certain behavior in childhood—A. BERNSTEIN

The expression of personality in drawings and paintings—L. H. STEWART

Negative stereotypes concerning Americans among American-born children receiving various types of minority-group education—J. A. FISHMAN

The Lincoln-Oseretsky Motor Development Scale—W. SLOAN

VOLUME 52—July-December, 1955

Some personality correlates of sex, sibling position, and sex of sibling among five- and six-year-old children—H. L. KOCH

A quantitative Rorschach assessment of maladjustment and rigidity in acculturating Japanese Americans—G. DEVOS

Measurement of authoritarianism and its relation to teachers' classroom behavior—H. M. MCGEE

The formal aspects of schizophrenic verbal communication—B. MIRIN

A study in an aspect of concept formation, with subnormal, average, and superior adolescents—H. N. HOFFMAN

Traumatic avoidance learning: Acquisition and extinction in dogs deprived of normal peripheral autonomic function—L. C. WYNNE AND R. L. SOLOMON

VOLUME 53—January-June, 1956

As the psychiatric aide sees his work and problems—F. L. WELLS, M. GREENBLATT, AND R. W. HYDE

An investigation of avoidance, anxiety, and escape behavior in human subjects as measured by action potentials in muscle—J. D. BROTHERS

Spread of effect: A critical review—M. H. MARX

Stress, fantasy, and schizophrenia: A study of the adaptive processes—O. J. B. KERNER

The attitude structure of the individual: A Q-study of the educational attitudes of professors and laymen—F. N. KERLINGER

VOLUME 54—July-December 1956

A study of personality differences between middle and lower class adolescents: The Szondi Test in culture-personality research—L. RAINWATER

The assessment of parental identification—S. W. GRAY AND R. KLAUS

The influence of social context on impulse and control tendencies in preadolescents—G. H. ZUK

Tender-mindedness versus tough-mindedness in psychology: A reexamination—H. WINTHROP

A method for the comparison of groups: A study in thematic apperception—L. C. SCHAW AND W. E. HENRY

VOLUME 55—January-June, 1957

Academic performance and personality adjustments of highly intelligent college students—B. M. HORRALL

The use of the Vineland Social Maturity Scale in the planning of an educational program for non-institutionalized low-grade mentally deficient children—M. G. GOTTSEGEN

The structure and origin of the anal character—H. BELOFF

Free expression of adolescents' interests—M. AMATORA

The rôle of mass media and the effect of aggressive film content upon children's aggressive responses and identification choices—R. S. ALBERT

Interest in persons as an aspect of sex difference in the early years—E. W. GOODENOUGH

VOLUME 56—July-December, 1957

Some stable response determinants of perception, thinking, and learning: A study based on the analysis of a single test—M. L. SIMMEL AND S. COUNTS

Potentials of age: An exploratory field study—S. L. PRESSEY

Tactile communication—L. K. FRANK

The use of a filmed puppet show as a group projective technique for children—M. R. HAWORTH

The social competence of middle-aged people—R. J. HAVIGHURST

VOLUME 57—January-June, 1958

Psychological and cultural problems in mental subnormality: A review of research—S. B. SARASON AND T. GLADWIN

Developmental aspects of discrimination in relation to adjustment—P. LONDON

Muscular tension as a response to psychological stress in rheumatoid arthritis and peptic ulcer—J. A. SOUTHWORTH

Frustration: Theory and experiment—R. LAWSON AND M. H. MARX

VOLUME 58—July-December, 1958

Emotional aspects of political behavior: The woman voter—E. M. BENNETT AND H. M. GOODWIN

The accuracy of self estimate: A measure of self-concept reality—R. M. BRANDT

Personality factors in social mobility: A study of occupationally mobile businessmen—J. C. ABEGGLEN

Interaction between authoritarian and nonauthoritarian principals and teachers—P. LAMBERT

Some factors related to the choice-status of ninety eighth-grade children in a school society—D. ELKINS

Some relationships between fantasy and self-report behavior—R. C. CALOGERAS

Genetic Psychology Monographs *(continued)*

VOLUME 59—January-June, 1959

1. Freshman Rorschachs and college performance—G. R. SCHMEIDLER, M. J. NELSON, AND M. BRISTOL
   Perceptual aspects of attributed movement—R. W. COAN
   Men and women: Personality patterns and contrasts—E. M. BENNETT AND L. R. COHEN
2. Personality factors in mothers of cerebral palsied children—G. BOLES
   Separatism and integrationism: A social-psychological analysis of editorial content in New York newspapers of thre
   American minority groups—J. A. FISHMAN AND G. S. FISHMAN
   Self, role, and satisfaction—A. L. BROPHY

VOLUME 60—July-December, 1959

1. The constancy of personality ratings over two decades—R. D. TUDDENHAM
   Mother-son identification and vocational interest—L. H. STEWART
   A study of mother-child relationships in the emotional disorders of children—M. J. ROSENTHAL, M. FINKELSTEIN,
   NI, AND R. E. ROBERTSON
   On the trail of the wolf-children—W. F. OGBURN AND N. K. BOSE
2. Measuring the mental health of normal adults—R. F. PECK
   Parental identification in young children—W. EMMERICH
   The problems of Jewish religious youth—B. M. LEVINSON

VOLUME 61—January-June, 1960

1. Identifying socially maladjusted school children—A. A. ADAMS
   Social interaction in an interracial nursery school—H. W. STEVENSON AND N. G. STEVENSON, *et al.*
   Interests of pre-adolescent boys and girls—M. AMATORA
   Educational and sex differences in the organization of abilities in technical and academic students in Colombia, Sout
   America—J. F. FILELLA
2. Some themes in the personalities of German men—L. RAINWATER
   Right-left gradients in body image, body reactivity, and perception—S. FISHER
   Longitudinal survey of child Rorschach responses: Younger subjects two to 10 years—L. B. AMES
   Personality patterns related to occupational roles—M. SIEGELMAN AND R. F. PECK

VOLUME 62—July-December, 1960

1. The reading process: A descriptive, interdisciplinary approach—M. P. LANGMAN
   Reactions to stress as a function of the level of intelligence—S. M. H. ZAIDI
   Rorschach diagnosis by a systematic combining of content, thought process, and determinant scales—P. A. BOWE
   R. TESTIN, AND A. ROBERTS
   Longitudinal survey of child Rorschach responses: Older subjects aged 10 to 16 years—L. B. AMES
2. Twenty years of shock therapy in America, 1937-1956: An annotated bibliography—N. H. PRONKO, R. SITTERLY, AN
   K. BERG
   The quantitative analysis of parent behavior toward psychotic children and their siblings—E. M. DONNELLY

VOLUME 63—January-June, 1961

1. Make a sentence test: An approach to objective scoring of sentence completions—E. F. BORGATTA
   Some aspects of the relationship between perception and motility in children—E. P. ROTHMAN
   Some psychophysical aspects of mental illness in children—P. H. BERKOWITZ
   Conceptual thinking in schizophrenic children—G. FRIEDMAN
2. Some maternal influences on children's personality and character—J. C. FINNEY
   A study of concept formation in normals, mental defectives, and brain-damaged adults—R. W. ZASLOW
   An investigation of trait relationships among six-year-old children—S. A. AVAKIAN

VOLUME 64—July-December, 1961

1. Coping patterns of preschool children in response to intelligence test demands—A. MORIARTY
   Studies of individual and paired interactional problem-solving behavior of rats: II. Solitary and social control
   A. BARON AND R. A. LITTMAN
2. Studies of role performance—J. H. MANN
   A psychological assessment of professional actors and related professions—R. TAFT
   A cross-cultural study of menstrual taboos—W. N. STEPHENS
   The biological roots of creativity—H. GUTMAN

VOLUME 65—January-June, 1962

1. A Rorschach study of the development of personality structure in white and Negro children in a Southeaste
   community—A. C. PRICE
   Measuring personality patterns of women—J. LOEVINGER
   Home interests in early adolescence—M. AMATORA
   Social and emotional adjustment during adolescence as related to the development of psychosomatic illness
   adulthood—L. H. STEWART
2. A systematic study of interaction process scores, peer and self-assessments, personality and other variables—E.
   BORGATTA
   Children's conceptions of the content and functions of the human body—E. GELLERT

VOLUME 66—July-December, 1962

1. Ocular-manual laterality and perceptual rotation of literal symbols—I. FLESCHER
   Parental child-rearing attitudes and their correlates in adolescent hostility—S. B. CHOROST
   Some explorations into the nature of anxieties relating to illness—P. R. ROBBINS
   Developmental-interactive aspects of hypnosis: Some illustrative cases—J. R. HILGARD AND E. R. HILGARD
2. Teaching a two-year-old to read: An experiment in early childhood learning—W. FOWLER
   Achievement gains or losses during the academic year and over the summer vacation period: A study of trends
   achievement by sex and grade level among students of average intelligence—K. M. PARSLEY, JR., AND M. POWELL

VOLUME 67—January-June, 1963

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(Manuscripts are printed in the order of final acceptance)

Personal space and acculturation 3
By D. B. Roger and Q. T. Mohi

Dimensions of ethnic identity: An example from northern Maine 11
By Howard Giles, Donald M. Taylor, and Wallace E. Lambert

Frustration and prejudice in South Africa 21
By H. Lever

Authority and conformity: Violation of a traffic regulation 35
By Carol K. Sigelman and Lee Sigelman

Distortions of estimates of numerousness and waiting time 43
By Vladimir J. Konečni and Ebbe B. Ebbesen

Group responses to territorial intrusion 51
By Robert J. Calvin

Physical attractiveness and personal space 69
By Patricia H. Powell and James M. Dabbs, Jr.

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Provincetown, Massachusetts 02657

Assessment of the psychosocial environment of the classroom: The class atmosphere scale 65
By Sam Silbergeld, Gail R. Koenig, and Ronald W. Manderscheid

Determinants of perceived aggression 77
By Robert C. Brown, Jr. and James T. Tedeschi

Ethnocentrism in black college students 89
By Edward C. Chang and Edward H. Ritter

Husband/wife comparisons of price-quality relationships in the post-purchase situation 99
By Gerhard W. H. Scherf and George F. Kawash

Fascism and attitudes toward mandatory sterilization: The development of an attitude scale 107
By Knud S. Larsen

Variables in interracial aggression: Exposure to aggressive interracial interactions ... 111
By Marcia Donnerstein and Edward Donnerstein

Deferred gratification and social class 123
By Marguerite F. Levy

Attitude scales as behavior estimation devices: Scale specificity and prediction accuracy 137
By Ronald W. Perry

CROSS-CULTURAL NOTES

Relationship of internal-external control and national suicide rates 143
By Myron Boor

REPLICATIONS AND REFINEMENTS

The bystander effect as a function of ambiguity and emergency character 145
By David Mason and Bem P. Allen

The effects of core facilitative conditions in mother on adolescent self-esteem 147
By Thomas W. Miller

CURRENT PROBLEMS AND RESOLUTIONS

Air pollution and recreational behavior 149
By Michael K. Chapko and Henry Solomon

Trust, anomia, and locus of control: Alienation in U.S. college students in 1964, 1969, and 1974 151
By Raymond N. Wolfe

Social character and consumer innovativeness 153
By Michael J. Etzel, James H. Donnelly, Jr., and John M. Ivancevich

Attitudinal bases of recycling 155
By Marion Steininger and Kathleen Voegtlin

Characteristics associated with expressed willingness to participate in psychological research 157
By Mac Griffith and C. Eugene Walker

BOOKS RECENTLY RECEIVED 159

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PERSONAL SPACE AND ACCULTURATION*

University of Fort Hare, South Africa

D. B. ROGER AND Q. T. MJOLI[1]

SUMMARY

The purpose of the present study was to compare acculturated and nonacculturated Africans on distance and orientation dimensions of simulated personal space, both within and between the groups. There were 16 males in each group, with a mean age of 21.06 years for the acculturated group and 20.06 years for the nonacculturated group. Personal space was measured by means of doll-placements in three conditions of differential status (Chief, Peer, and Boy), and a significance level of $p<.05$ was maintained throughout the analysis. Comparisons within the groups revealed that the acculturated group placed themselves significantly farther from the Chief than from the Peer, while the nonacculturated group placed themselves significantly farther from the Boy than from the Chief. Other distance comparisons, and all orientation differences, were not significant within the groups. Between-group comparisons showed significantly greater mean distance and orientation scores for the nonacculturated group in the Peer and Boy conditions, while differences between Chief placements were insignificant.

A. INTRODUCTION

Personal space has been defined as the portable "bubble" surrounding each individual that serves to regulate interpersonal spacing, and that varies in accordance with factors such as age, sex, and culture (3, 6, 8). Noting that people of different cultures inhabit different sensory worlds—Arab conversational distance, for example, seems embarrassingly intimate to an Englishman or American—Hall (6) concluded that culture was the primary determinant of personal space. Hall (7) furthermore proposed that

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[1] The authors would like to thank Mr. V. T. Soul for his assistance.

subcultures within the broader cultural framework also tend to develop characteristic spacing behavior.

These hypotheses have subsequently received some empirical support (12, 18). Differences have been found to be particularly marked when contact and noncontact cultures are compared, since the latter contain relatively more prohibitions against interpersonal contact (3). Scant attention has been paid, however, to the effects on personal space of acculturation, a process that may be described as the transition from one cultural form to another, by means of adaptation to the dominant form. This oversight may in part be attributed to the fact that acculturation between "developed" cultures, which are the most amenable to study, tends to be of a highly diffuse and gradual nature. Engebretson and Fullmer (3) nonetheless found significant personal space differences between native Japanese and Hawaiian Japanese samples, while the Hawaiian Japanese did not differ from American Caucasians; these findings clearly indicate an acculturative transition, with concomitant changes in personal space behavior, from Japanese to American culture.

A subsequent investigation has suggested that the effects of the transition from a relatively traditional to a more Westernized way of life may be equally marked (2). The main aim of the present study was to seek confirmation for this conclusion by comparing two groups of African *S*s from the same broad cultural group who, while living in the same geographical area, differ in degree of acculturation to Western patterns.

As mentioned earlier, other factors besides culture have been found to play a role in the determination of personal space. These vary in importance according to the situation; but previous investigations that included both culture and the relationship of the interactants as variables have revealed that the latter is at least as powerful a determinant of personal space as culture (3), particularly when the status of the interactants was markedly discrepant. In order to investigate this phenomenon among African *S*s, three different status conditions were included in the design of the present experiment—Peer, Chief, and Boy. The first of these is the condition of equal status, while the Chief and the Boy (whose age was given as about 13 years) represent the upper and lower extremes of status, respectively, in African society.

Finally, personal space may be measured in a variety of ways, employing either behavioral (i.e., "live") or simulated methods (9, 10, 11). The latter, which include the doll-placement technique used in the present study, involve fewer practical problems, and also exclude the effects of the *S*'s

perception of the other interactants as individuals rather than representations. Furthermore, although behavioral approaches are usually considered more valid, and are used as the criterion measure in the comparison of the two methods, significant correlations have been obtained between them (5, 15).

B. Method

1. *Subjects*

*S*s were two groups comprising 16 Xhosa[2] males each, one acculturated (ACC) and the other nonacculturated (N-ACC). Students of the University of Fort Hare were chosen as an appropriate group from which to select the ACC sample, since education is one of the most important factors affecting the transition from a traditional to a Western culture. The Grant Urban-Rural Scale (described below) was administered to a large group ($N = 160$) of first-year students, and all those obtaining an acculturated score ($N = 16$) were included in the sample.

The N-ACC group was obtained by applying the Scale to randomly selected Xhosa males in the rural district surrounding the university. Each *S* was screened before testing, and only those of similar age to the student group completed the Scale. The protocols were scored immediately, and only those testees obtaining an N-ACC score proceeded to the doll-placement task. Testing was continued until 16 *S*s had completed both tests (total $N = 25$). The mean age of the ACC group was 21.06 years (range 18-25 years, SD 1.75), and 20.06 years for the N-ACC group (range 17-29 years, SD 3.30).

2. *Measuring Instruments*

a. The Grant Urban-Rural Scale. This scale was developed by C. V. Grant (4) as a brief measure of degree of urbanization, which is defined as acculturation from a rural to an urban way of life. It is therefore an appropriate tool for distinguishing between traditional and Western values among Africans, since this transition takes the form of a rural-urban continuum. The test comprises only 17 items, and thus permits rapid administration and scoring. Scores between 0 and 5 are considered rural (N-ACC), between 6 and 11 transitional, and between 12 and 17, urban (ACC).

b. The doll-placement task. Two identical plaster dolls of uniform ter-

[2] The Xhosa are an African group residing mainly in the Transkei and Ciskei.

racotta color were used. The dolls were eight inches high, mounted on two by two and a half inch bases. Although they were given no particular expression, the details of clothing and facial features were included.

The dolls were placed in the three status conditions by all *S*s. Each placement was made on a separate 30 by 24 inch cardboard sheet, plain white except for a two by two and a half inch pencilled square in the middle of, and two inches away from, one of the shorter sides. To reduce the influence that the conditions may have had on one another, they were rotated, so that every fourth *S* in each group completed them in the same sequence.

3. *Procedure*

The administration of the Grant Scale to the N-ACC *S*s has been described. The student *S*s were given the Scale during a normal practical period.

For the doll-placements, *S*s were seated individually at a table upon which the three cardboard sheets were stacked, with the pencilled squares to the *S*'s left. One doll was placed in the square, facing towards the center of the sheet, and the *S* was asked to imagine that this doll was a Chief (or Peer or Boy, depending on the *S*'s rotational position). The other doll was handed to the *S*, and he was told that it was to represent himself. He was then asked to place this doll in relation to the stationary doll, "as if you were going to talk to him." The *E* avoided specific details about the dolls, and in answering queries the status of the interactants was emphasized rather than conversational content.

The *E* then marked the sheet at the center of the base of the placed doll, and removed both dolls and the first sheet. The procedure was repeated on the second and third sheets, except that the status condition was changed for each new placement. After the *S* had left, the distance and angle of the marks from the pencilled squares were recorded, and the marks removed. A direct face-to-face placement was taken as 0°, and the orientation score was determined by counting the number of degrees away from this that the placement was made (direction of angle—left or right of the stationary doll—was not taken into account). Since the race of the *E* may have influenced the placements, particularly in South Africa, all testing was conducted by the second author, who is himself a Xhosa.

4. *Data Analysis*

One-way analyses of variance, with Scheffé tests for interaction, were used for comparisons within groups, and *t* tests for comparisons between

groups. Despite heterogeneity of variance, the data were not transformed, since these statistical procedures are all relatively insensitive to violations of the assumption of homogeneous variances when the samples are of equal size (16). A significance level of $p < .05$ was maintained throughout the analysis.

C. Results

The mean distance and orientation scores for the two groups are presented in Table 1.

There were significant differences between the mean orientation scores for the two groups in the Peer ($t = 2.06$; df 30) and Boy ($t = 2.21$) conditions. Comparisons between distance scores were also significant in the Peer ($t = 2.87$) and Boy ($t = 3.67$) conditions, but neither orientation nor distance scores differed significantly between the groups in the Chief placement.

Comparing the conditions within each group showed significant differences for distance in both the ACC ($F = 4.65$, df 2/45) and N-ACC ($F = 3.79$) samples. Examining pairs of means showed that the ACC group placed themselves significantly farther from the Chief than from the Peer ($F = 8.20$), while the N-ACC group placed themselves significantly farther from the Boy than from the Chief ($F = 7.62$). Orientation scores were not significantly different in either group.

D. Discussion

In the study by Engebretson and Fullmer (3), mentioned earlier, the native Japanese sample was found to maintain significantly greater interpersonal distance than the Hawaiian Japanese or American Caucasian

TABLE 1
Mean Scores for Distance (cm) and Orientation (Degrees) for the Three Experimental Conditions

Condition	Acculturated	Nonacculturated
Chief		
Distance	11.89	11.36
Orientation	7.12	16.00
Peer		
Distance	6.27	18.07
Orientation	11.93	29.06
Boy		
Distance	7.60	26.56
Orientation	8.94	25.31

groups. The authors attributed this modification of spatial behavior to the differing degree of prohibition against interpersonal contact inherent in these cultures.

Between-group comparisons in the present study clearly indicate a similar shift from noncontact to contact behavior in the acculturation process among Africans, with the N-ACC group obtaining greater mean scores for orientation and distance in the Peer and Boy conditions than their ACC counterparts. Although the ACC *S*s, in direct contrast to the N-ACC *S*s, expressed no respect for Chiefs in their responses to the Grant Scale, it is interesting that there were no significant differences between groups in either distance or orientation in the Chief condition. This indicates that despite the general erosion of traditional values during acculturation, and despite expressed attitudes to the contrary, some of these values may be more tenacious than others.

Investigations into the effects that relationship has on personal space have often made use of Wiener and Mehrabian's (19) theory of immediacy, which states that greater immediacy is related to more positive, anxiety-free attitudes, and is accompanied by a more direct orientation and less distance. Thus Cook (1) found that confidently and directly expressed hostility resulted in a more direct orientation, and Edwards (2) found that high-status interactors stand more directly than low-status ones.

These studies have been concerned primarily with orientation asymmetry, and the findings regarding relationship and orientation have not been unequivocal—Rosenfeld (17), for example, found no significant orientation differences between approval-seeking and approval-avoiding conditions. On the other hand, he did find that distance scores differentiated significantly between the conditions, with the approval seekers sitting closer than the approval avoiders. Subsequent studies (13, 14) have confirmed that distance between communicators correlates positively with status discrepancy.

One implication of Rosenfeld's findings is that distance is a more powerful indicator of status differences than orientation, a conclusion that is borne out by the present study, since orientation differences were insignificant in both groups. Considering distance, it was expected in terms of the immediacy model that the N-ACC *S*s would place themselves closest to the Boy and farthest from the Chief. Instead, they placed themselves significantly farther from the Boy than from the Chief, with the mean distance from the Peer falling between the two.

In the ACC group, it was expected that there would be no significant

differences between the Boy and the Peer placements, since status differences between boys and men tend to be of relatively little importance to this group; this was indeed supported by the results. On the other hand, the attitudes expressed by these *S*s on the Grant Scale suggested that they would place themselves closer to the Chief than to the Peer or Boy, whereas in fact they placed themselves farther from the Chief than from either the Peer or Boy. These distances were significantly different only in the Chief x Peer comparison, however, with the mean distance for the Boy condition falling between the other two in the ACC placements.

E. Conclusions

The marked effects of acculturation on personal space behavior are clearly demonstrated in the present study, as well as the relatively greater importance of distance as compared to orientation as an indicator of status relationships. The results indicate further that, contrary to previous findings, status discrepancy and distance were inversely related among nonacculturated Africans. This is also the case among acculturated Africans in conditions where the addressee has a higher status than the addressor.

The latter conclusion should be seen in the light of the difference between the two tests employed in the study, however, since it has been suggested that doll-placements may be a valuable projective technique for investigating interpersonal relationships (2). The similarity between the Chief placements in the two groups, and the difference between their expressed attitudes, may thus mean that the doll-placements tapped relatively more "unconscious" attitudes than the Grant Scale did, and that Chiefs are in fact respected as much by the acculturated as by the nonacculturated *S*s.

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DIMENSIONS OF ETHNIC IDENTITY: AN EXAMPLE FROM NORTHERN MAINE*[1]

University College, Cardiff, Wales; McGill University, Canada; and Title VII Project, Caribou, Maine

HOWARD GILES,[2] DONALD M. TAYLOR,[3] WALLACE E. LAMBERT, AND GILBERT ALBERT

SUMMARY

A multidimensional scaling procedure was used to explore the role played by cultural background, language, and geographic region in the process of ethnic identity among residents of a mixed ethnic community in Northern Maine.

Nineteen Anglo-American and 48 Franco-American male and female high school students were asked to make similarity judgments among various stimulus labels, eight of which differed in terms of culture (Anglo/Franco), language (French/English), and region (Northern Maine/Southern Maine). The stimulus labels MYSELF and MY PARENTS were used as reference points. The results demonstrated that language was the prime dimension of ethnic identity for both Anglo-Americans and those Franco-Americans with a high proficiency in French. For Franco-Americans without French proficiency, cultural background was the salient dimension.

A. INTRODUCTION

Despite a growing literature dealing with ethnic identity (e.g., 1, 3, 6, 7, 8), little is known about the dynamics of this process. In their review, Pushkin and Veness (7) note that researchers have been concerned mainly

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[2] Now at the University of Bristol, England.
[3] Reprints may be obtained from the second author at the address shown at the end of this article.

with the acquisition and development of positive or negative ethnic identities in children. With adult informants, theoretical attention has recently been directed to how and why some cultural groups modify negative identities to more positive ones (10). Empirical research, however, seems to have largely bypassed a more fundamental issue, that of determining the salient dimensions of ethnic identity for various cultural groups. So far little is known about the cross-cultural consistency of the salience of such dimensions.

Some research on the dimensional features of ethnic identity has been started with Canadians in Quebec, and with Welshmen in the United Kingdom. Taylor, Simard, and Aboud (12) using a multidimensional scaling procedure speculated that geographical boundary, cultural background, and language could be important dimensions of English- and French-Canadian identity. In a follow-up Taylor, Bassili, and Aboud (11) demonstrated that language was more important than cultural background or geography for both these Canadian groups. For instance, French-Canadians perceived an English-Canadian who spoke mainly French to be more similar to them than a French-Canadian who spoke mainly English. Similarly, Giles, Taylor, and Bourhis (2) found that in Wales, where language is presumably not nearly as central an issue as it is in Quebec, language once again was a more salient feature of identity than cultural background or geographical residence. Language spoken, then, appears to be so important a factor in ethnic identification that it emerges as salient even for those who have very low facility in their national tongue.

The present experiment was designed to test the generality of these results in another cultural context. The orienting question was whether language would also be an important dimension of identity for Anglo- and Franco-Americans. The study was conducted with adolescent respondents living in Caribou, a small rural city in Northern Maine located in close proximity to Canada and the St. John's Valley area where a high concentration of French-Canadians first settled. Despite the apparent similarities between the French-Canadian and Franco-American contexts, the populations differ in at least one important respect: there is no one-to-one correspondence between cultural background and the use of the French language for Franco-Americans as there is for French-Canadians in Quebec. Our hunch is that Franco-Americans have in the past been encouraged, possibly for reasons of status advancement, to accommodate to Anglo-American linguistic norms. We wondered then whether a common identity pattern would emerge for Franco-Americans who are highly proficient in

French as well as those with little proficiency in that language, as it did in Wales.

The method involved presenting *S*s with a number of labels representing the three factors of interest. *S*s were exposed to the labels two at a time, in all possible combinations, and were asked to make a judgment about the similarity of the two labels forming each pair. Since judgments were made for all possible combinations of the stimulus labels, we were able to apply a multidimensional scaling model for analysis. This procedure is particularly useful for examining ethnic identity, since labels placed close together in multidimensional space (e.g., see Figure 1) are perceived by *S*s as being relatively similar, whereas those placed far apart are perceived as different. The concepts MYSELF and MY PARENTS function as reference points in this subjective space.

B. Method

1. *Subjects*

The *S*s for the experiment were 19 Anglo-American and 48 Franco-American male and female high school students from Caribou, Maine. All were within the age range of 15 years to 16 years, 9 months. Ethnic background was determined by *S*s' response to a direct question asked at the end of the study. At the end of the study *S*s were also asked to rate their speaking and comprehension ability in French. Two separate scales were provided, and *S*s checked a position along an 11 cm straight line, defined at one end by "speak French fluently" or "understand French fully," and at the other as either "speak no French at all" or "understand no French at all." On the basis of these ratings, the Franco-American sample was divided into two groups in terms of their self-perceived proficiency in French. The high proficiency group rated their speaking and comprehension skills at or above the mid-point on both scales, while the low proficiency group rated both skills below this point; 26 and 22 *S*s respectively constituted the sample sizes. Interestingly, there was no statistical difference between the self-rated French skills of the Anglo-Americans and low proficiency Franco-Americans; both groups of course rated themselves much lower in abilities than did the high proficiency Franco-American sample.

2. *Materials and Procedure*

*S*s were presented with 10 stimulus labels and were asked to think about and form an impression of each. Eight of the labels comprised three pieces

of information: one cultural background variable—Franco-American/Anglo-American; one linguistic variable—speaks only English/speaks French and English; and one geographical variable—lives in Southern Maine/lives in Northern Maine. The stimulus labels took the form of a descriptive sentence with standard syntax: e.g., A Franco-American living in Northern Maine who can speak only English. Combinations of the values taken by these three variables generated a total of eight stimulus labels; the remaining two labels were MYSELF and MY PARENTS.

The *S*s were presented with the stimulus labels two at a time in all possible combinations. For each pair, the task was to judge how similar the two stimuli were. The rating scales used were again an 11 cm straight line defined at one end by "very different" and at the other by "very similar." For each stimulus pair, *S*s made their ratings by placing a mark through the point on the line that corresponded to his evaluation of the similarity of the two stimuli. The questionnaire was administered in English by a British-accented *E*.

C. Results and Discussion

A common statistical analysis was applied to each of the three samples, one Anglo-American, and two Franco-American. The *S*s made similarity ratings between all possible pairs of labels providing us with a mean similarity matrix for each sample. A Kruskal-Shepard multidimensional scaling analysis (5, 9) was then performed on each sample.

1. *Anglo-American Sample*

The ratings made by the Anglo-American *S*s were best reproduced on two dimensions. The goodness of fit measure (referred to as a "stress" measure) was low enough (.10) for us to conclude that the final two-dimensional configuration was nonrandom (4). Further, beyond two dimensions there was a less dramatic shift in "stress" than between the first two dimensions. The results for the two dimensional solution are presented in Figure 1.

The configuration for Anglo-Americans appears to be clearly influenced by the linguistic variable, even though cultural background is important but secondary. Geographical residence plays a minimal role. In Figure 1, we note that the labels form three discernible clusters. One cluster includes the reference stimulus, MYSELF, and encompasses English-speaking persons. Indeed, *S*s did not consider themselves any more similar to monolingual Anglo-Americans than to Franco-Americans who speak only English.

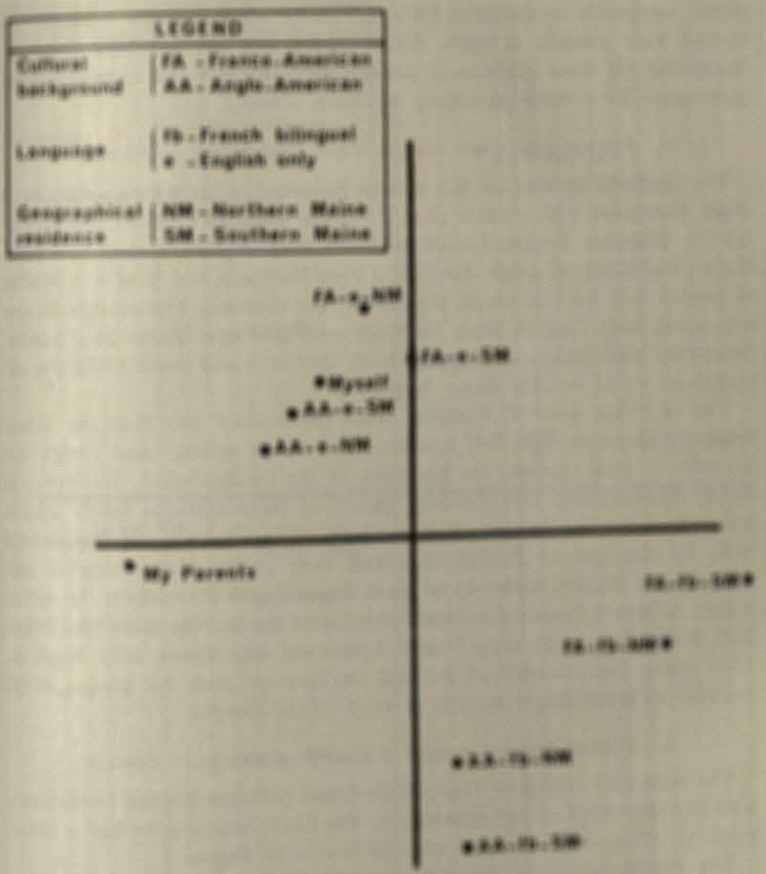

FIGURE 1
RESULTS OF EUCLIDEAN-SCALED MULTIDIMENSIONAL SCALING PROCEDURE FOR TWO DIMENSIONS FOR THE ANGLO-AMERICAN SAMPLE

The two clusters further away from MYSELF relate to bilingual stimulus persons. The importance of cultural background factor can be gauged from the fact that it did differentiate between French- and Anglo-American monolinguals. Moreover, this cultural distancing phenomenon is accentuated in the case of the two bilingual clusters despite the fact that both are

placed essentially equidistant from MYSELF. Interestingly enough, *S*s viewed their parents as quite distinct from any of the three clusters. Apparently for these adolescents, parents were perceived on characteristics quite apart from those pertaining to ethnic identity.

2. *Franco-Americans with a High Proficiency in French*

The similarity ratings for this sample collapsed to form two points on a single dimension with a stress of 0. Thus the labels MYSELF, MY PARENTS, bilingual Franco-Americans from both Northern and Southern Maine, and bilingual Anglo-Americans from Northern and Southern Maine all loaded 0.82 on this single dimension. By contrast, Franco-Americans who speak only English from Northern and Southern Maine and Anglo-Americans who speak only English from the north and south of Maine all loaded at -1.23 on this single dimension.

The fact that only 10 stimulus labels were used and that the stress became 0 suggests that this solution may be an artifact and hence we interpret it with caution. On the basis of the configuration, however, it seems that language was the only feature of these stimulus labels which was salient for this sample of respondents. These *S*s aligned themselves with all speakers of French including their parents, and singled out monolingual English speakers as most dissimilar to themselves. In other words, bilingual Franco-Americans considered themselves more like bilingual Anglo-Americans than Franco-Americans who speak only English. This group then considered cultural background and the geographical variable as unimportant aspects of their ethnic identity.

3. *Franco-Americans with a Low Proficiency in French*

The similarity ratings of Franco-Americans with low French proficiency were best described on two dimensions. The final configuration had a stress value of .18 and the loadings are represented in Figure 2.

The configuration for this subject group is largely influenced by the cultural background factor, with the linguistic variable this time being of secondary importance. From Figure 2 we note that these *S*s aligned themselves most closely with Franco-Americans of whatever level of linguistic skill. In fact, they form virtually a semicircle around the reference stimulus MYSELF. Those of Anglo-American cultural heritage are placed farthest away from MYSELF. Language did play an important role in that monolinguals of either ethnic background are perceived as quite distinct from bilinguals. A distinctive feature of this identity pattern is the wide

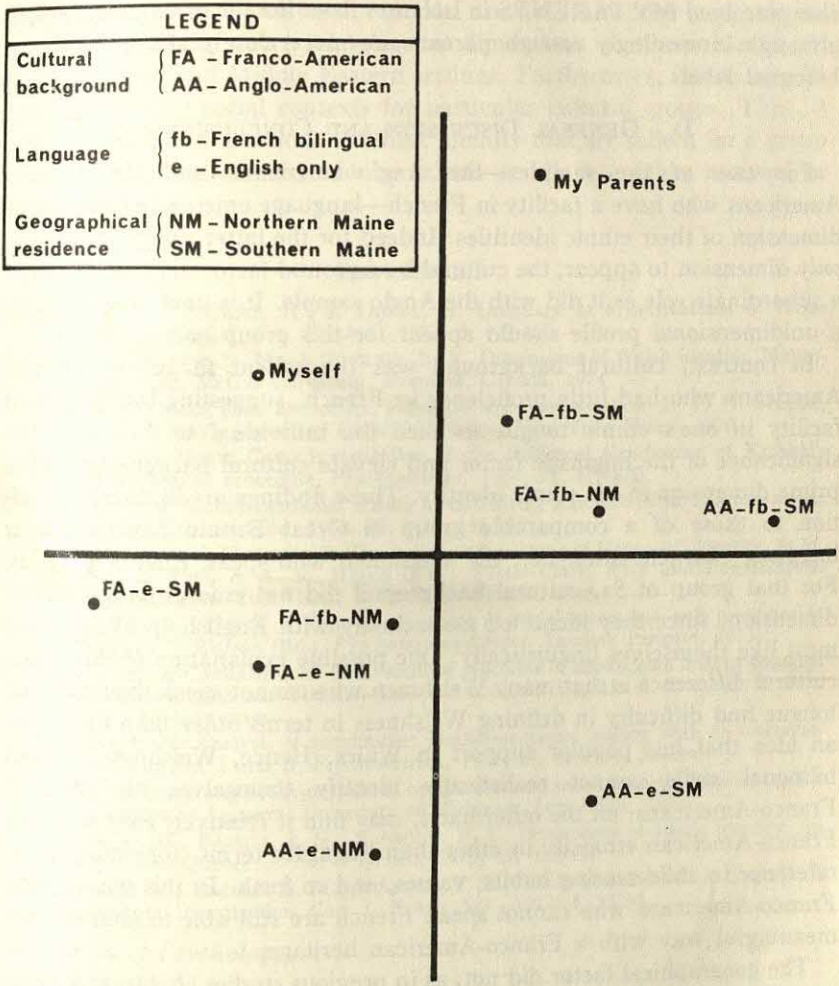

FIGURE 2
RESULTS OF KRUSKAL-SHEPARD MULTIDIMENSIONAL SCALING PROCEDURE FOR TWO DIMENSIONS FOR THE FRANCO-AMERICAN SAMPLE WITH LOW PROFICIENCY IN FRENCH

scatter of placements: each stimulus person was perceived to be relatively distinct from each other. In other words, there are no real clusterings as with the other two samples of *S*s. Once again, geography did not appear to play an important role. As with the Anglo-American sample, this group

also perceived MY PARENTS in isolation from the other stimulus persons although interestingly enough parents are more closely aligned with the bilingual labels.

D. General Discussion and Conclusions

For two of the samples—the Anglo-Americans and the Franco-Americans who have a facility in French—language emerged as the salient dimension of their ethnic identities. Indeed for the latter group, it was the *only* dimension to appear; the cultural background factor did not play even a subordinate role as it did with the Anglo sample. It is unclear as yet why a unidimensional profile should appear for this group only.

In contrast, cultural background was the salient factor for Franco-Americans who had little proficiency in French, suggesting that a lack of facility in one's ethnic tongue inclined the individual to downplay the significance of the linguistic factor and elevate cultural background as the prime dimension in his ethnic identity. These findings are in direct opposition to those of a comparable group in Great Britain having similar linguistic characteristics: i.e., the Welshmen who speak English only (2). For that group of *S*s, cultural background did not emerge as the salient dimension, since they identified most closely with English speakers, those most like themselves linguistically. One possible explanation of this cross-cultural difference is that many Welshmen who cannot speak their national tongue find difficulty in defining Welshness in terms *other* than linguistic, an idea that has popular support in Wales. Hence, Welshmen without bilingual skills cannot realistically identify themselves as "Welsh." Franco-Americans, on the other hand, may find it relatively easy to define Franco-American ethnicity in other than linguistic terms, for example, by *reference* to child-rearing habits, values, and so forth. In this sense, then, Franco-Americans who cannot speak French are still able to identify in a meaningful way with a Franco-American heritage.

The geographical factor did not, as in previous studies (2, 11), emerge as an influential dimension of ethnic identity in Northern Maine. Moreover, the inclusion of the concept MY PARENTS appeared to be an insignificant reference point. Nevertheless, the fact that the bilingual Franco-American sample was the only group that identified at all closely with its parents is worthy of further attention. Likewise it would be valuable to explore the role parents play in the child's acquisition of an ethnic identity.

Although language and cultural background have in this study once again emerged as salient dimensions of ethnic group identity, this need not

necessarily be so in all cultural contexts. Indeed, skin color and religion may be assigned far more relevance as dimensions of ethnic identity in African, Indian, and Middle Eastern settings. Furthermore, it may also be important to vary social contexts for particular cultural groups. Thus, it could well be that dimensions of ethnic identity that are salient for a group in one social situation may not be salient at all in another national or cultural setting.

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FRUSTRATION AND PREJUDICE IN SOUTH AFRICA*

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SUMMARY

The proponents of the frustration-aggression theory regard prejudice as a form of aggression. Three studies on the effect of frustration on prejudice in South Africa are described. Two of the studies are based on contrived experiments with college students (*Ns* = 320 and 209, respectively) and the third on a social survey of the white residents of Johannesburg ($N = 1884$). There seems to be some evidence for a frustration-sympathy relationship which may, or may not, be peculiar to South Africa. Specific ethnic groups may be selected as suitable targets for displaced aggression. These ethnic groups are not necessarily those lowest in the hierarchy of ethnic preferences.

A. INTRODUCTION

The frustration-aggression theory of prejudice continues to receive favorable treatment in textbooks on intergroup relations (for example 19, 21). The theory has some appeal to social scientists since it offers an interesting perspective and seems to account for a number of aspects (particularly the more violent) of intergroup tension.

In the original form of the theory the Yale group, who have done most to espouse its cause, postulated an invariable relationship between frustration and aggression. Frustration, which was regarded as a barrier to the attainment of a goal, always gave rise to aggression. Aggression, wherever it was found, was always a consequence of frustration. "The proposition is," say Dollard and his colleagues, "that the occurrence of aggressive behavior always presupposes the existence of frustration and, contrariwise, that the existence of frustration always leads to some form of aggression" (4, p. 1). The theory was subsequently modified to take cognizance of the obvious

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fact that frustration may give rise to a variety of different reactions. The amended version made provision for frustration to produce "instigations to a number of different types of response, one of which is an instigation to some form of aggression" (17, p. 338).

Two main types of aggression are generally recognized: direct aggression in which hostility is directed at the source of the frustration, and displaced aggression in which hostility is directed at a substitute object. Dollard maintains that even in direct aggression there is an element of displaced aggression (3). There is a third type of aggression which is not directed against any particular object as when a man strikes this thumb with a hammer and he utters invectives not directed at any specific person or object (4, p. 10).

There are a number of prominent physical and symbolic forms of aggression in the field of intergroup relations. Dollard and his colleagues regard prejudice as a form of aggression (4, p. 152). They maintain that "the existence of a social prejudice against a group of people is evidence, first, that those who have the prejudice have been frustrated and, second, that they are expressing their aggression or part of it in fairly uniform fashion" (4, p. 151). Displaced aggression in the form of prejudice against particular ethnic groups presupposes a general societal "permission to hate." It is implied, although not clearly specified by the authors of *Frustration and Aggression,* that the group or groups selected to fulfill this scapegoat function occupy a fairly low position in the hierarchy of ethnic preferences. Nonetheless, it is often difficult, in practice, to predict which group will be singled out as a target for aggression.

Some of the evidence in support of the frustration-aggression theory of prejudice is based on historical material. The evidence based on empirical research is not too convincing and suggests that further investigation is required. Some of the best known studies of frustration-aggression theory in the field of intergroup relations are those reported by Miller and Bugelski (16), Hovland and Sears (7), Campbell (2), and Allport and Kramer (1). A number of studies have tended to suggest that members of minority groups develop sympathetic rather than antipathetic feelings for groups that encounter discrimination. In South Africa, there is a clear tendency for Jewish respondents to be sympathetic towards non-Whites (6, 11, 14, 18).

Three studies undertaken in South Africa on the relationship between frustration and prejudice will now be reported.

B. Study No. 1

1. *Method*

This study took the form of a contrived "after-only" or simultaneous experiment. The experiment was conducted in 1964 at the University of the Witwatersrand. Students (N = 320) enrolled in the introductory course in sociology were assigned at random to a control group and four experimental groups. There were approximately 64 students in each group. Three of the experimental groups were designed to lead to a decrease in prejudice. The results pertaining to this portion of the experiment have been reported elsewhere (8). The fourth experimental group was subjected to a frustrating situation. (This group will now be referred to as the "frustration group".) The students were not aware that an experiment was in progress. They were simply told that their usual lecture would not be delivered on a particular day and that seminars would be held in its place. They were required to consult the departmental notice board to ascertain the rooms to which they had been assigned. In order to ensure attendance they were told that registers of attendance would be taken. (Registers of class attendance, infrequently used now, were quite common in 1964.)

The control group listened to a lecture on the history of sociology. It was the type of lecture which could have been delivered in the usual lecture period. The topic was a neutral one as far as ethnic attitudes were concerned. The frustration group was required, without prior notice, to write a test which was to count towards the end of the year mark. The test was a difficult one, but unlike the one used by Miller and Bugelski, the possibility existed that some students could do well. It was realized that the writing of a good test paper could be a satisfying experience for some students despite the fact that they had been unjustly treated by not receiving prior notification. In order to prevent a feeling of satisfaction a number of interruptions were scheduled which were designed to break the concentration of students. A number of announcements of a trivial nature were made at appropriate times. For example, students were interrupted and told to draw margins on the left-hand side of the page or to write on only one side of the page. It was also realized that students budget their time in the test situation. As a final frustration, the test period was reduced by five minutes in summary fashion.

Two trained observers were stationed at strategic positions in each group in order to record the behavior of respondents. They were required to

identify themselves with the class and not to make themselves conspicuous. There is little of interest in the observations of the control group. It was the usual type of lecture situation with some bored students in evidence particularly towards the rear of the room. The observers in the frustration group reported the banging of rulers, murmurs of disapproval ("somebody spread a rumor that we're going on strike") and threats to report the unfairness of the test to the head of the department. Aggression was directed against the supervisor in the form of disgruntled comments and "glares of disapproval." One observer reported as follows: "Each interruption made the class a little more restless. They were interrupted by one supervisor coming late and banging the door behind him; by being told to use one side of the paper only—three quarters of the way through the test when they had already written on both sides. They were told that all grammar and spelling mistakes would be counted against them. This caused more uproar and annoyance directed at the supervisors." One student frequently banged his desk and comments directed at him were: "shut up," "for goodness sake," "he's so immature."

At the end of the lecture in the control group and the test situation in the frustration group the students were required to complete a Bogardus social distance test designed to measure the affectional or "directional" dimension of prejudice: they were asked to express their "first feeling reaction" toward 15 ethnic groups. Averages of social distance (social contact distance indices) in respect of the 15 ethnic groups were computed for the control and frustration groups and are shown in Table 1. A low social contact distance index indicates a favorable attitude. The higher the index, the less favorable the attitude (that is, social remoteness).

2. *Results*

It will be seen that the general pattern is for the frustration group to express more favorable attitudes than the control group. In the case of the Chinese, the difference was fairly large. Students who were exposed to frustration were more sympathetically disposed towards the Chinese than students who had listened to a lecture on the history of sociology ($t = 2.196$; $df = 122$; $p < .05$). This was the only statistically significant difference obtained. In the case of three other ethnic groups—Indians, Africans, and Jews—the difference would not have attained significance, but would have approximated significance had one-tailed test been used. However, at the time of the study, there was little basis to justify the use of one-tailed tests. It will be seen from Table 1 that frustration seems to have

TABLE 1
SOCIAL CONTACT DISTANCE INDICES OF CONTROL AND FRUSTRATION GROUPS IN RESPECT OF 15 ETHNIC GROUPS (1964 EXPERIMENT)

Ethnic group	Control group	Frustration group	Difference[a]
Hollanders	1.91	1.87	−.04
Jews	1.57	1.79	+.22
English-speaking South Africans	1.44	1.32	−.12
Africans	3.62	3.37	−.25
Coloreds	3.67	3.52	−.15
Afrikaans-speaking South Africans	1.96	2.00	+.04
British	1.67	1.63	−.04
Indians	3.62	3.33	−.29
Germans	2.63	2.40	−.23
Scotsmen	1.92	1.80	−.12
Chinese	2.98	2.46	−.52
Italians	2.38	2.24	−.14
Portuguese	2.77	2.64	−.13
Japanese	3.03	2.95	−.08
Russians	3.40	3.67	+.27

[a] Differences are computed by subtracting the average social distance score of the control group from the average score of the frustration group.

led to a slight increase in prejudice towards Jews and Russians. This runs counter to the general trend of a decrease in prejudice ostensibly as a result of frustration. The sign test yields a statistically significant result (p = .004).

As an "after-only" experiment had been used, it is relevant to inquire whether the control and frustration groups were equal on social distance before the commencement of the experiment. It is assumed that they were. Confidence in this underlying assumption of the "after-only" experiment is enhanced by the random assigning of students to groups. In addition, information was available on the religion, home language, sex, and length of stay at the university of each respondent. The control group had a larger proportion of Jews than the frustration group (8 percent more) and also had no Dutch Reformed adherents. The frustration group had two members of the Dutch Reformed Church. The control group also had a smaller proportion of students who had entered university for the first time in 1964 and a greater proportion of students who had been at university for some years. 17.9 percent of students in the control group had entered university in or before 1962 compared with 8 percent in the frustration group. It can be inferred that initially the control group was slightly more tolerant than the frustration group. The general pattern of Table 1 suggests that frustration

led to a decrease in social distance. Insofar as there was a slight bias in the composition of the control and frustration groups, the elimination of such bias would tend to accentuate this tendency. That is, if the control and frustration groups were equal on social distance before the experiment, the effect of frustration would be to lead to greater tolerance.

C. Study No. 2

1. *Method*

This study is based on data obtained from a social survey of the White residents of Johannesburg (N = 1884) undertaken in 1964. The survey made use of an area sample in which suburbs, streets, dwelling units, and respondents within dwelling units were successively drawn at random. Interviews were conducted with the respondents. At the conclusion of the interview a questionnaire, which contained a social distance test, was administered. The social distance test was the same as that used in the first study except that Greeks were substituted for Scotsmen. In the course of the interview the respondents were asked: "Which one of the following statements best describes the way you feel about your present work? (*a*) Very dissatisfied; (*b*) Dissatisfied; (*c*) Sometimes dissatisfied, sometimes satisfied; (*d*) Satisfied; (*e*) Very satisfied."

The interviewers were instructed to rotate the alternative answers in order to avoid a preference for an answer by virtue of its position. The question is adapted from Campbell's study where the interviewers were required to do the rating. It is reasoned that dissatisfaction with one's work is symptomatic of a deep-lying or important frustration. Since working hours occupy a great deal of one's time, dissatisfaction with working conditions is a rather severe frustration. It was found that very few respondents were dissatisfied or very dissatisfied with their work. The reason is not difficult to find. In the modern age it is fairly easy to change one's job if dissatisfied. This is presumably what a number of Johannesburg residents have done. The original intention was to compare the ethnic attitudes of persons who were very dissatisfied in their work with those who were very satisfied. In view of the small number of very dissatisfied respondents it became necessary to group the "dissatisfieds" and the "very dissatisfieds" into one group which will be termed the "frustration group" or "dissatisfied group." Members of the frustration group were then matched by precision control with the very satisfied respondents. Matching was undertaken on five factors known to have a bearing on ethnic attitudes

in South Africa (9, 12, 13, 14, 15, 18, 20): home language, religion, sex, occupation, and country of birth. There were 56 respondents in each group who possessed the same combination of attributes. The social contact distance indices of the matched groups are presented in Table 2.

2. *Results*

The general trend of Table 2 (as of Table 1) was for frustration (as evidenced by dissatisfaction with work) to be associated with tolerance for ethnic groups. The sign test again reveals a significant result with $p < .001$. An important difference between Tables 1 and 2 concerns the case of the attitude towards Russians. An unexpected event which occurred during the course of the survey (10)—namely, a sabotage attempt in the Johannesburg railway station—and which was not "controlled for" in the analysis might be responsible for the difference in the two tables.

It will be seen from Table 2 that the differences between the control and frustration groups are greater than in the first study. This may be due to the fact that precise matching has revealed true differences. There were a number of statistically significant differences between the control and frustration groups. In the case of attitudes towards the Japanese and Chinese,

TABLE 2
SOCIAL CONTACT DISTANCE INDICES OF SATISFIED AND DISSATISFIED RESPONDENTS IN RESPECT OF 15 ETHNIC GROUPS (1964 SURVEY)

Ethnic group	Satisfied	Dissatisfied	Difference[a]
Hollanders	2.33	1.95	−.38
Jews	1.85	2.11	+.26
English-speaking South Africans	1.51	1.39	−.12
Africans	4.69	4.51	−.18
Coloreds	4.69	4.26	−.43
Afrikaans-speaking South Africans	1.60	1.57	−.03
British	2.16	1.59	−.57
Indians	4.79	4.22	−.57
Germans	2.81	2.41	−.40
Greeks	2.92	2.69	−.23
Chinese	4.13	3.18	−.95
Italians	3.08	2.47	−.61
Portuguese	3.81	3.02	−.79
Japanese	4.55	3.58	−.97
Russians	5.10	4.24	−.86

[a] Differences are obtained by subtracting the social contact distance indices of the "satisfieds" from those of the "dissatisfieds."

the differences were significant at the 2 percent level (t = 2.471 and 2.62, respectively) and for the Portuguese and British, the differences were significant at the 5 percent level (t = 2.079 and 2.141, respectively). In other words, those who were dissatisfied in their jobs were more favorably disposed toward Japanese, Chinese, Portuguese, and the British than those who were satisfied. In the case of attitudes toward the Italians, a one-tailed test would have yielded significance at the 5 percent level. In the case of attitudes toward Indians and Coloreds, a one-tailed test would have yielded a result approaching significance. There was no significant difference between the two groups in their attitudes toward Jews. Nonetheless it is of some consequence to find that the attitudes towards this group are out of harmony with the general trend of differences revealed in the two studies. In general, Table 2 presents an interesting pattern of differences in social distance particularly when considered in the light of the findings revealed in the first study.

D. Study No. 3

This study was intended to be the most systematic test of the influence of frustration on prejudice. Unfortunately, for reasons which will be discussed later, the results were not as clear-cut as might have been expected. At the time that the study was planned, it was thought that a frustration-sympathy theory might be more appropriate than a frustration-aggression theory. The reasoning underlying this study was that increasing gradations of frustration would be associated with corresponding decreases in prejudices (or increases in prejudices if the frustration-aggression theory is postulated).

Since the research design does provide a crucial test of the influence of frustration on prejudice and as replication is fairly easy, the procedure will be described in some detail.

1. *Method*

In 1966 the members of the introductory sociology class in the University of Witwatersrand (N = 209) were assigned at random to a control group and three experimental groups. The control group listened to a lecture on the history of sociology. The three experimental groups were subjected to varying degrees of frustration. Each of the three groups were required to write a "surprise test." The test varied in difficulty for the three groups and the marks to be allotted to the test result were also varied in order to induce increasing gradations of frustration. Experimental group 1

was subjected to mild frustration (the "mild frustration group"). Experimental group 2 was subjected to somewhat greater frustration (the "moderate frustration group"). Experimental group 3 was subjected to the most intense frustration (the "strong frustration group").

The test paper for the mild frustration group was a very simple one: namely, "Write an essay on the field of sociology."

The test paper for the moderate frustration group was as follows: "Describe the nature of sociology with particular reference to its conceptual content, its methodology, and its relationships to other social sciences."

The test paper for the strong frustration group, with due respects to Talcott Parsons, was as follows: "Evaluate the following statement indicating its obvious limitations: 'Sociology is concerned with the phenomena of the institutionalization of patterns of value-orientation in the social system, with the conditions of that institutionalization, and of changes in the patterns, with conditions of conformity with and deviance from a set of such patterns and with motivational processes insofar as they are involved in all of these.' "

Students were told that the test result would count towards their end of the year mark (5 percent in the case of the mild frustration group, 10 percent for the moderate frustration group, and 15 percent for the strong frustration group). A number of interruptions were scheduled for each group.

At the end of the test session, questionnaires were handed out which contained a social distance test and a test of the stereotypes held in respect of Africans and Jews. The latter test, which had been adapted from Miller and Bugelski's study, required the respondents to endorse those characteristics which they considered to be typical of Africans and Jews. The following traits (11 favorable and 11 unfavorable) were listed: friendly, arrogant, intelligent, cowardly, stingy, clean, cheerful, sly, honest, bad-mannered, brave, cruel, polite, stupid, dangerous, industrious, dirty, dependable, stubborn, good-looking, liars, peaceful. Two measures of prejudice were thus obtained. One measure was of the directional dimension of prejudice (social distance) and the other of the cognitive dimension (stereotypes). After the questionnaires had been collected, the respondents were informed of the nature of the experiment.

2. *Results*

Table 3 presents the arithmetic means on the social distance scale for 15 ethnic groups. The extent of frustration is not related to social distance in

TABLE 3
SOCIAL CONTACT DISTANCE INDICES OF CONTROL AND THREE FRUSTRATION GROUPS IN RESPECT OF 15 ETHNIC GROUPS (1966 EXPERIMENT)

Ethnic group	Control	Mild frustration	Moderate frustration	Strong frustration	*F* values
Hollanders	2.10	1.76	2.60	1.87	13.657
Jews	1.69	1.51	1.84	1.62	.69
English-speaking South Africans	1.52	1.36	1.65	1.49	1.13
Africans	3.52	3.65	3.24	3.42	.79
Coloreds	3.55	3.55	3.55	3.44	.09
Afrikaans-speaking South Africans	2.20	2.10	2.27	2.19	.21
British	1.76	1.85	2.06	1.78	.55
Indians	3.47	3.62	3.29	3.43	.39
Germans	2.25	2.96	3.33	2.43	3.32
Greeks	2.41	2.51	3.13	2.46	2.22
Chinese	2.78	2.70	3.08	2.69	.78
Italians	2.44	2.15	2.87	2.48	2.05
Portuguese	2.96	2.65	3.38	2.85	1.77
Japanese	2.71	2.90	3.66	3.10	2.82
Russians	3.20	3.16	3.90	3.60	1.28

any systematic way. The analysis of variance test shows that there were three statistically significant differences. Respondents in the moderate frustration group were less favorably disposed to Hollanders than respondents who had been subjected to mild frustration. Those who were exposed to moderate frustration were less favorably disposed to Germans and Japanese than respondents in the control group. However, reading the table as a whole, it appears that there are simply random fluctuations of arithmetic means. There certainly are no step-by-step increases or decreases of social distance according to the degree of frustration induced. A similar conclusion is appropriate for the stereotypes of Africans and Jews set out in Table 4.

Why did the results of the third study differ so markedly from the first two studies? Two possible explanations, which overlap to an extent, suggest themselves. The first postulates the existence of an extraneous factor which affected the purity of the experiment. In 1966, the Department of Sociology had, for the first time, set a quota for the number of students it would accept in the introductory course. Candidates had to undertake a psychometric test in order to qualify for admission. There were a number of students (approximately 70) who regarded the admissions test as too much of a bother and declined to undertake it. The introduction of the quota system has meant that better students have been admitted to the

TABLE 4
AVERAGE NUMBER OF FAVORABLE AND UNFAVORABLE TRAITS ASCRIBED TO AFRICANS AND JEWS BY CONTROL AND THREE FRUSTRATION GROUPS (1966 EXPERIMENT)

Traits	Control	Mild frustration	Moderate frustration	Strong frustration	*F* values
Favorable traits of Africans	3.19	2.60	3.10	2.73	1.04
Unfavorable traits of Africans	1.40	1.94	1.47	1.78	.85
Favorable traits of Jews	4.81	4.87	5.04	4.87	.06
Unfavorable traits of Jews	.98	1.40	1.14	1.13	.62

course. The impression, gained from observation during the frustration situation, was of students who were willing to accept a challenge and who were willing to comply with the whims of the supervisor even if he was a trifle unreasonable. The threshold of frustration was not as low as it had been in 1964. The students in the strong frustration group attempted the almost impossible essay and wrote quite extensively on it. Students in all three frustration groups readily complied with the instructions on the ruling of margins.

The second explanation is simply that sufficient frustration was not induced. There were hardly any murmurs of disapproval, threats, or hostile glares. In 1964, the respondents appeared to have been badly upset by the behavior of a particular student who banged his desk. Perhaps it would be desirable to provide for this kind of noisy interruption.

E. MAIN CONCLUSIONS

1. The evidence from the present and preceding studies shows that frustration may lead to prejudice, to sympathy, or may have no effect on ethnic attitudes.
2. In the studies reported here, sympathy was a more frequent reaction to frustration. There is an interesting application of such a result; namely, that it is not frustration, but rather comfort and the preservation of comfort that underlies ethnic attitudes in South Africa.
3. A frustration-sympathy relationship may be unique to South Africa. The uniqueness of the South African situation in relation to the frustration-aggression (sympathy) relationship may lie in the population distribution, the normative structure and/or the role which the non-White

groups play in the society. With Whites comprising roughly 20 percent of the total population there is a certain measure of reluctance to antagonize the nonWhite groups unnecessarily. Overt violence across the color line occurs less frequently in South Africa than in the United States. In South Africa, Coloreds and Africans have seldom been utilized as scapegoats and are regarded more as sources of cheap labor. The puzzle, at the present time, is why the smaller, wealthier, and relatively disliked Indian group was not selected as an object for displaced aggression. It does appear to have been used, to a certain extent, as a scapegoat in the past. It is suggested that comparative studies in other countries, particularly in America where the validity of the frustration-aggression hypothesis cannot be regarded as settled, are desirable.

4. It is likely that Jews and Russians may be singled out as convenient scapegoats for displaced aggression.

5. As a suggestion for further research, it is recommended that one-tailed tests of significance be used to test the following predictions on the effect of frustration in South Africa: (*a*) no effect on attitudes toward English- and Afrikaans-speaking South Africans, (*b*) an increase in prejudice expressed towards Russians and Jews, and (*c*) a decrease in prejudice for the other ethnic groups.

The final comment is perhaps the most obvious one, namely:

6. More research is needed on the relationship between frustration and aggression. Such research may need to pay attention to cultural differences in reaction to frustration and to differences in reaction brought about by different *types* of frustration.

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AUTHORITY AND CONFORMITY: VIOLATION OF A TRAFFIC REGULATION*[1]

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SUMMARY

In an attempt to uncover the personal and situational determinants of law violation, rates of prohibited right turns on red lights were observed at four intersections in Lubbock, Texas, for 726 male and female Anglo drivers. Drivers were either alone, or behind a violating model, or alone in the presence of a uniformed authority figure standing at the corner, or in the presence of both violating model and a uniformed authority figure. The uniform significantly decreased overall rates of violation. When no law-breaking model was present, the effect was significant, but the introduction of a violating model cancelled the uniform's effect, and the corrupting effect of the model was more powerful in the Uniform condition than in the No Uniform condition. Generally, males and drivers under 30 were more likely to turn than females and drivers over 30. Females and older drivers were more hesitant to turn in the presence of a uniformed authority figure than were males and younger drivers, and females were particularly susceptible to the effects of a violating model's defiance of authority.

A. INTRODUCTION

Most people most of the time probably feel a general inhibition against breaking the law—some because they think it is wrong, some because they think it is dangerous, some because they think it is potentially expensive, some because they don't think about it at all. But all laws are not created

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equal. Some, like the law against murder, are generally complied with because they are buttressed by powerful community norms. Others, like prohibition or court-ordered desegregation, prompt massive resistance because they are so at odds with community norms. Most fascinating are those laws (e.g., red lights) for which compliance or resistance is variable, a function of situational and personal factors.

On the one hand, the very existence of such a law exerts pressure toward compliance, and the fact that most people from an early age learn that "red means stop" and "green means go" makes compliance even more likely. On the other hand, in many areas it has become customary to flout the red-green calculus by turning right on red. But even in jurisdictions where turning right on red is actually legal, some drivers simply will not do it. The situation is likely to be all that much more dissonance-producing where turning right on red is prohibited *de jure* but permitted *de facto*. In this situation, local custom, convenience, and the absence of severe penalties for violation all make noncompliance more likely. The motorist in this situation is caught between the cross-pressures of the authority of the law and behavioral compliance with long-standing values, on the one hand, *versus* convention and convenience on the other.

Stopping for a red light seems more likely if a policeman is on the corner. However, it is not just the power of the policeman to punish offenders that accounts for his effect. A uniform *per se,* even if it is not the uniform of a duly authorized officer, carries with it a degree of "legitimate power" (9), which is based on perception of the wearer's right to exert influence. Bickman (5) found that a guard's uniform increases compliance with requests to pick up a paper bag, give a dime to a stranger, and move away from a bus stop. People continued complying with the guard's request even after he had left the scene, suggesting that his power was not coercive—i.e., not based on his ability to punish noncompliance. But other studies, notably Milgram's (14) research on obedience to commands to administer painful shocks, suggest that the continued presence of an authority figure increases compliance. Thus, a uniform may connote both legitimate and coercive power, either of which should increase compliance with the law.

On the other hand, drivers are subject to social influence from other drivers. We would expect a model who successfully violates the law to increase the probability of violation by another driver. Models may increase an observer's awareness of alternatives, provide information about the consequences of actions, or cue the observer to appropriate behavior in a certain situation (10). Models can increase law-abiding behavior, causing,

for example, drivers to signal turns more frequently (3). But violating models have been shown to increase the likelihood of prohibited behaviors, such as jaywalking (12) and disregarding signs (8, 11). Finally, in Milgram's obedience research, the refusal of two confederates to administer shocks reduced the rate of obedience among *S*s (13). According to Bandura (2), it is generally easier to lower restraints against an action than to inhibit it by modeling, especially when the prohibited action (such as turning right on red) is positively reinforcing. We predicted, then, that a violating model would increase violation of the law, even in the presence of a uniformed authority figure exerting pressure toward compliance.

Less clear is the effect of pressures toward compliance or resistance on different types of drivers. American women are known to have more positive attitudes toward the legal system than men do (18), and cross-cultural research suggests that females are often more obedient and less self-reliant than males (4). Conformity research also indicates that women are more susceptible to group influence (15). However, women are not as conforming as men in areas with which they are more familiar (17). Further, although women are more likely to come to a full stop at stop signs (7) and to signal their turns (3, 6), they are not more compliant with requests from uniformed and civilian *E*s (5), nor have been found to be more likely to follow the example of models who signalled turns (3) or to respond to a sign advocating signalling (6). Still, in a driving situation, where men typically have more experience and expertise, our best prediction is that women will be more compliant with the law. Moreover, women should be more susceptible to the effects of a model of noncompliance with the law, although previous research is equivocal on these points.

Evidence is not as readily available about the effects of age, but we would make predictions parallel to those concerning sex: older drivers seem less likely to violate the law than younger ones. Indeed, Feest's research (7) suggests that this is the case with respect to the violation of stop signs, but his study does not indicate how older and younger drivers might respond to pressures toward compliance and noncompliance.

In order to examine the determinants of compliance with a law prohibiting right turns on red, an observational study incorporating field experimental techniques was conducted in Lubbock, Texas, first, to extend previous research by examining the effect of a uniformed authority figure on the frequency of turns and second, to assess the impact of an example of noncompliance, in the form of a violating model, on right turn rates. Further, the interaction between a uniformed authority, who should in-

crease compliance, and a violating model, who should increase resistance, ought to shed light on another question of interest: Can an unpunished model of noncompliance counteract the effects of the increased pressure to comply exerted by a uniformed symbol of authority? Finally, we were concerned with age and sex differences in the tendency to comply with the law, and in the differential effects of an authority figure and a role model on male and female, as well as older and younger, drivers.

B. Method

1. *Subjects*

The *S*s of this study were 726 motorists at four intersections in Lubbock, Texas.[2] Drivers were not included in the sample unless two observers agreed that they had an ample opportunity to turn right—thereby excluding cases in which there was no clear break in the cross-traffic at any time during the driver's tenure at the corner, and, quite obviously, those who were positioned behind a car which did not turn right on the red light.

With on observer calling out observations and the other recording them, it was possible to note the sex, approximate age (judged as under or over 30), and race of drivers, as well as the model and year of cars, the messages on any bumper stickers, and the origin of license plates (local or nonlocal). The recorder served as a cross-check on the observer's ratings of sex, age, and race, and disagreements were followed by further observation by both until consensus was reached. Because the number of blacks and Mexican-Americans observed was too small to permit detailed statistical analysis, we decided to restrict this analysis to the 726 Anglo drivers who passed through the four intersections. Nor are the descriptive characteristics of automobiles reported here, because preliminary analysis indicated that they were unrelated to turning rates. As for the remaining characteristics, 58.0% of the *S*s were males and 42.0% were females; 38.3% were judged to be under 30 and 61.7% over 30. Distributions of age and sex were similar in the Uniform and No Uniform conditions.

2. *Procedure*

Observations were made at four intersections identified by the Lubbock Police Department as among the busiest in the city and as being free from construction work. Because time of day did not affect turn rates, observa-

[2] The field work for this study was carried out in the spring of 1973. Since then, turning right on red has been legalized in the state of Texas.

tions from various times of day were pooled. The two observers positioned themselves unobtrusively in a car out of the line of sight of *S*s. At three of the corners, unobtrusiveness was achieved by parking at a gas pump; at the fourth, the observers parked in a busy parking lot. In all, there were four observation periods of 45 minutes duration on different days at each of the corners in the No Uniform conditon; an additional 45-minute observation was conducted at each corner when the Uniform treatment was in effect.

The Uniform treatment altered the physical nature of the corner. A 20-year-old Anglo male of average height and build played the role of authority figure by wearing a blue Air Force ROTC uniform with an Eisenhower jacket and an officer's hat. He positioned himself close to the curb so that he was directly in the line of sight of any driver who would be considering a right turn. With an expressionless face and his hands either folded across his chest or on his hips, he presented, through body language and dress, an image of authority, suggestive of a policeman but without badge or gun.

The Model and No Model conditions were defined naturalistically. If no car preceded an *S*'s car in the right lane, the *S*, presuming he or she had a clear opportunity to enter cross-traffic, was included in the No Model condition. If there was a lead car in the lane and if that car turned right on red, the following car was assigned to the Model condition.

C. Results

Statistical analyses, in the form of a series of 2 × 2 contingency tables, were conducted to test hypotheses about the impact of a uniformed authority figure, a model of illegal behavior, and driver age and sex, on the tendency to turn right on red.[3] Adjusted *phi* (ϕ) coefficients were calculated to indicate the strength of relationships, with statistical significances set at the .05 level for the chi-square statistic.

1. *General Effects*

As predicted, the overall effect of a uniformed authority figure was significant, with 55.4% turning in the No Uniform condition and 42.9% turning in the Uniform condition ($\phi = .176$, $p = .005$). Also consistent with our expectations, males in the No Uniform conditon ($\phi = .248$, $p = .001$) and in the Uniform condition ($\phi = .226$, $p = .004$) were more likely to

[3] The authors will supply on request a table summarizing the violation rates of the various types of drivers in each experimental condition.

violate the law than were females, with approximately 20% more males than females violating in each condition. Similarly, younger drivers turned more often than older drivers in both the No Uniform ($\phi = .207$, $p = .001$) and Uniform ($\phi = .296$, $p = .001$) conditions.

The hypothesis that a violating model would increase the rate of violation was also upheld, attaining statistical significance in the Uniform condition ($\phi = .313$, $p = .013$) and falling just short of significance in the No Uniform condition ($\phi = .145$, $p = .083$). This sheds some light on another prediction—namely, that a violating model would dilute or cancel out the effect of a uniformed authority figure. The presence of a violating model significantly increased rates of turning in the Uniform condition. This finding must be coupled with another: the presence of a uniformed authority figure significantly reduced the rate of turning (from 53.2% to 37.6%) in the No Model condition ($\phi = .232$, $p = .002$), but it had no impact when a violating model was present; when a violating model was present in both the Uniform and No Uniform conditions, the turn rate was a substantial 62.2%. In sum, when a uniformed authority figure was present, the modeling effect was so powerful that it not only cancelled the otherwise suppressing effect of the authority figure, but it even raised the rate of turning to the 62% level reached when a model was present and the uniformed figure was absent.

2. *Uniforms*

The uniform affected different types of drivers differently. Women were significantly less likely to turn in the Uniform condition than in the No Uniform condition ($\phi = .239$, $p = .046$), but the impact of the uniform was not significant for males. Similarly, older drivers were influenced by the uniform ($\phi = .235$, $p = .008$), but younger drivers were not. The same pattern is revealed within the No Model condition: both women ($\phi = .383$, $p = .009$) and older drivers ($\phi = .285$, $p = .007$) were significantly affected by the uniform manipulation, whereas males and young drivers were not. The overall dampening effect of the uniform, then, occurred primarily when no violating model was present and struck disproportionately among older and female drivers. Comparisons for the four specific subgroups were not made because of small Ns, though most results were in the predicted direction.

3. *Models*

With no authority figure present, neither male nor female turn rates increased significantly from the No Model to the Model condition; nor was

the effect of a model significant for young or old drivers. In the Uniform condition, however, a violating model had a more pronounced impact, particularly on females ($\phi = .367$, $p = .009$). The modeling effect, then, was consistently weak in the No Uniform condition, although it did significantly raise overall turn rates in the Uniform condition, where it had its strongest impact on females.

4. *Age and Sex*

Differences in turn rates between males and females were consistent across the various uniform and modeling conditions—with one notable exception: females approximated male turn rates in the presence of *both* model and uniform ($\phi = .011$, $p = .963$). They were significantly more law-abiding than males in the No Uniform-No Model ($\phi = .202$, $p = .001$), No Uniform-Model ($\phi = .213$, $p = .022$), and Uniform-No Model ($\phi = .391$, $p = .002$) conditions.

Differences between younger and older drivers held primarily in the No Model conditions. In both the No Uniform-No Model condition ($\phi = .215$, $p = .001$) and the Uniform-No Model condition ($\phi = .256$, $p = .010$), younger drivers turned right significantly more often than older drivers, but differences between younger and older drivers were insignificant in the corresponding Model conditions.

D. Discussion

The fact that under natural conditions (and in a very conservative, law-and-order-oriented setting), fully 55.4% of the drivers turned right on red is testimony to the fact that community norms and personal convenience run counter to the substance of the law and that, as a consequence, compliance with the law is a personally and situationally governed behavior.[4] Personal variables did indeed affect decisions, for males turned more frequently than females, and younger drivers more frequently than older ones—findings consistent with those of Feest (7) concerning stop sign behavior and with broader generalizations about attitudes toward the law and actual crime rates (16). Moreover, under natural conditions, a violating model elicited further violation, though this effect was not significant nor as powerful as modeling effects reported elsewhere in the literature.

The experimental strategy used to increase pressure to comply with the

[4] Indeed, a survey of Lubbock citizens' attitudes toward the legal system conducted by Texas Tech University's Institute on Law and the Social Order shows how powerful this community norm is. Fully 84.4% of those polled felt that right turns on red should be legal. Unfortunately for our purposes, this attitude survey was undertaken *after* Texas state law had been changed to permit right turns, but this finding is still highly suggestive.

law was successful. Like Bickman (5), we found that a uniformed authority figure—even one whose uniform carries no real power to mete out punishments—increased compliance, particularly among women and older drivers. Since these same types of drivers are generally more law-abiding, it is not surprising that they are also more susceptible to increased pressure to comply with authority. Although Bickman did not find that women were more compliant than men with requests from uniformed *E*s, differences between the design of Bickman's research and our own may account for this discrepancy. In Bickman's research, *S*s were not violating a law if they refused to pick up a paper bag or to honor other requests. Although he concluded that the influence of a guard stemmed from legitimate rather than coercive power, the uniformed man in the present study could have been perceived to have both forms of power at his disposal.

An important qualification, however, is in order. Our findings suggest that another driver who successfully violated the law completely overpowered the influence of the uniformed authority figure. The suppressed turn rate of only 37.6% among drivers alone in the presence of the authority figure climbed dramatically to 62.2% when a violating model was present—precisely the same turn rate characteristic of naturally occurring situations when the lead driver turned. This finding contrasts sharply with that of Freed, Chandler, Mouton, and Blake (8), who detected no interaction between authority and conformity in predicting sign violations. The effect of a model who defied the authority figure was again strongest for females, a finding which parallels many studies of conformity to group pressure (15). In fact, only when the cross-pressures of model *and* uniform were present did women's turn rates approach the generally higher turn rates of men.

How can we explain this curious effect? Several studies indicate that a model's effect is strengthened when the observer sees the model rewarded for his action (2). In the presence of an authority figure, however, there is a bonus: the model also escapes punishment by an authority figure whose coercive power is possibly being assessed by the observer. In other modeling research, observers have been found to be as strongly affected by a model's "getting away" with a punishable offense as by a model's being rewarded for the same action (1, 19). Freedom from punishment coupled with reward to a model, then, should have a stronger effect than either alone. It is even plausible that for more law-abiding drivers—particularly women and, to a lesser extent, older persons—the fact that the uniformed man ignored violations endowed such acts with legitimacy, so that the

resulting high rates of violation were actually manifestations of susceptibility to the influence of authority.

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DISTORTIONS OF ESTIMATES OF NUMEROUSNESS AND WAITING TIME*[1]

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SUMMARY

During the gasoline shortage in 1974, 53 male and 36 female San Diego drivers waiting to purchase gasoline were asked to estimate the number of cars ahead of them in the line and the length of time they expected to wait. Unlike situations previously studied, drivers were unaware of the available amount of the commodity. Regressions of both the estimated number ahead on the actual number and the estimated waiting time on the actual time were significant ($p < .001$). In contrast to previous findings, people close to the end of lines did not underestimate the number ahead. Drivers overestimated irrespective of their position. However, considerable underestimation of the time drivers expected to wait was found throughout the lines, with the amount of underestimation proportionate to the distance from the beginning of the line.

A. INTRODUCTION

Remarkably little attention has been devoted to motivational factors affecting judgmental accuracy in real-life situations, despite the fact that at least some dimensions of judgment—numerousness being a notable example—are clearly of more than academic interest only (1, 2). The work of Mann and Taylor (1) stands almost alone in the literature. Australians at different positions in waiting lines for valued commodities estimated the number of people standing ahead of them. Those relatively close to the beginning of the line tended to *over*estimate the number ahead; however, people much farther from the beginning of the line *under*estimated the

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[1] Requests for reprints should be sent to either author at the address shown at the end of the article. Order of authorship was randomly determined.

number ahead. The authors accounted for the "critical position," beyond which underestimation was dominant in various lines of different length, in terms of a "wish-fulfillment" mechanism. Since queuers were aware of the available amount of commodity, those beyond a certain position underestimated the number ahead to justify their continued presence in the line.

A conceptual replication was needed to test the generality and culture-specificity of these results and examine the extent to which they were a function of the queuers' knowledge of the *exact* amount available of the commodity. In many situations, there is uncertainty about the amount of the desired commodity. In such cases, there should be no critical point. Instead, one might expect queuers throughout a line to underestimate the number ahead, with the degree of underestimation proportionate to the distance from the commodity.

Another important issue is whether uncertainty about the amount of commodity affects judgmental dimensions other than amount. On the assumption that waiting in lines is aversive, the wish-fulfillment tendency may be reflected in estimates of the time one will spend waiting for the commodity. In fact, because waiting time is more loosely related to the drivers' perceptual input than number of cars ahead, waiting time may well be the primary dimension on which distortion occurs. As outlined above, a critical point should not be present, and underestimation should be proportionate to the temporal distance from the commodity.[2]

B. Method

An opportunity to examine these issues arose during the gasoline shortage in 1974. Long lines formed at stations. It was impossible to predict a station's business hours and the quantity of gasoline intended for sale. *S*s were 53 men and 36 women (17-75 years of age) who sat in their cars in one of 14 lines at 10 stations in San Diego. The lines varied in length from nine to 23 cars (a median of 15). Each driver in a line was approached by *E*, except those in the first four to five cars. *E*s were three women and two men, unaware of the hypotheses.

Having indicated a university affiliation, *E* asked *S*s to estimate the number of cars ahead, the number of minutes they expected to wait, and the likelihood of obtaining gasoline. There were no refusals.

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[2] The present arguments, as well as those of Mann and Taylor, can be just as comfortably cast in cognitive-dissonance terms. In the situations studied, the two theoretical positions are virtually indistinguishable.

C. Results

No *S*s abandoned a line prematurely. The sale ceased before 11 of 89 drivers could obtain gasoline (leaving 46 male and 32 female *S*s).

1. *Numerousness*

The estimated number of cars ahead is plotted in Figure 1 as a function of the actual number. The linear regression yielded an F of 42.57, df = 1/76, $p < .001$ ($y = -.34 + 1.28x$), accounting for 35.1% of the variance.

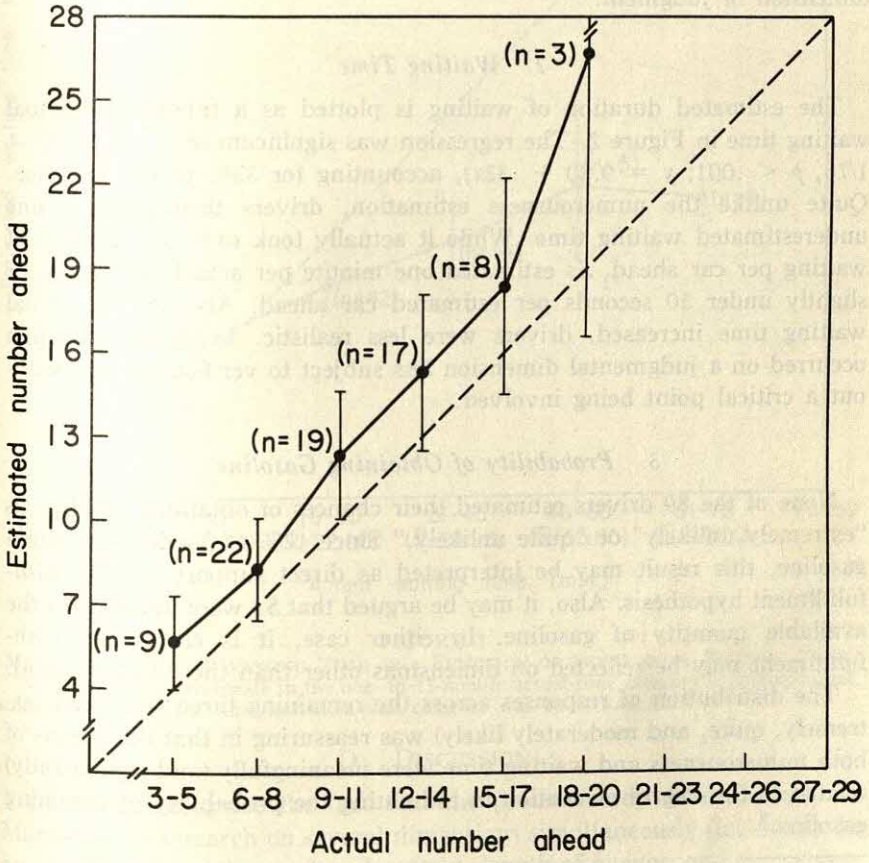

FIGURE 1
MEAN ESTIMATES OF THE NUMBER OF CARS AHEAD AS A FUNCTION OF THE ACTUAL NUMBER OF CARS AHEAD.

In comparing the above results to those of Mann and Taylor (1), note that the latter authors showed the *actual* number ahead on the ordinate.

Drivers overestimated the number ahead *irrespective* of their position in the line. While drivers farther from the commodity overestimated somewhat more than those closer to it, this trend was not significant. The Mann-Taylor findings were thus replicated, but only in part. Even when the amount of the commodity was unknown, drivers close to the beginning of a line did not underestimate the number ahead. Contrary to the Mann-Taylor results, there was no tendency for people close to the *end* of lines to underestimate, as well. Wish-fulfillment was certainly not reflected on this dimension of judgment.

2. *Waiting Time*

The estimated duration of waiting is plotted as a function of actual waiting time in Figure 2. The regression was significant ($F = 39.29$, $df = 1/76$, $p < .001$; $y = 9.80 + .32x$), accounting for 33% of the variance. Quite unlike the numerousness estimation, drivers throughout a line underestimated waiting time. While it actually took over 3.5 minutes of waiting per car ahead, *S*s estimated one minute per actual car ahead, or slightly under 30 seconds per estimated car ahead. Also, as the actual waiting time increased, drivers were less realistic. In short, distortion occurred on a judgmental dimension less subject to verification and without a critical point being involved.

3. *Probability of Obtaining Gasoline*

None of the 89 drivers estimated their chances of obtaining gasoline as "extremely unlikely" or "quite unlikely." Since 12% of *S*s did not obtain gasoline, this result may be interpreted as direct support for the wish-fulfillment hypothesis. Also, it may be argued that *S*s were unaware of the available quantity of gasoline. In either case, it is clear that wish-fulfillment may be reflected on dimensions other than the number ahead.

The distribution of responses across the remaining three categories (extremely, quite, and moderately likely) was reassuring in that distortions of both numerousness and waiting time were meaningfully (and significantly) related to the degree of caution in estimating the probability of obtaining gasoline.[3]

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[3] Additional data concerning the sex, age, social status (defined by the estimated car value), and audience (defined as presence/absence of passengers) variables may be obtained directly from the authors.

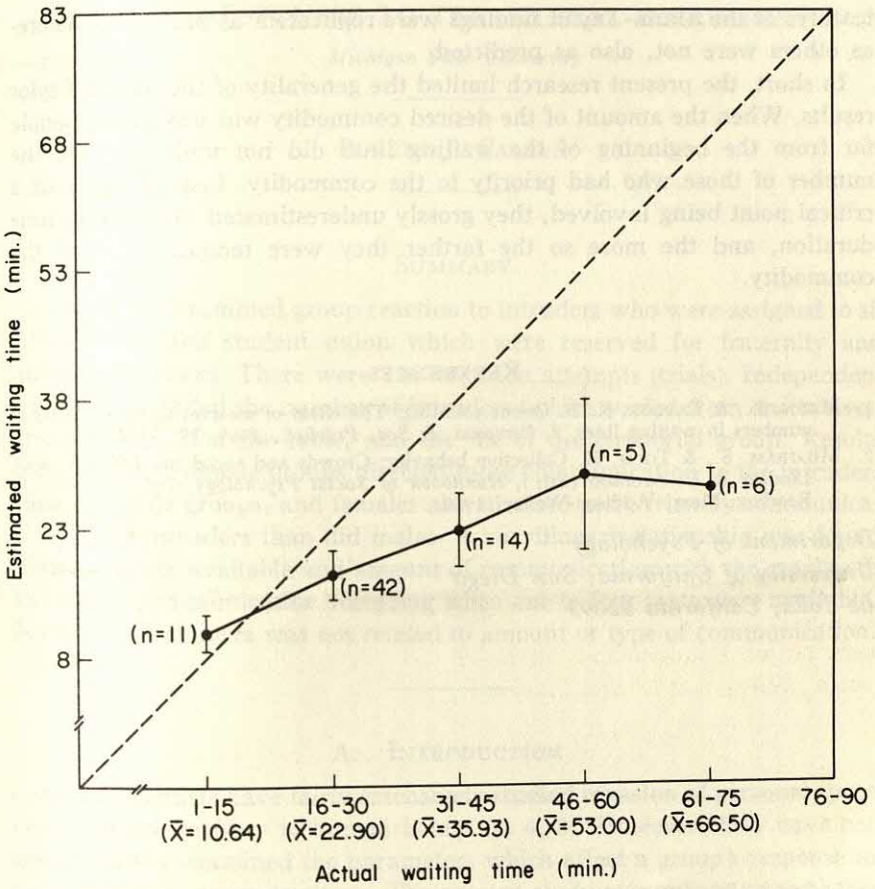

FIGURE 2

MEAN ESTIMATES OF WAITING TIME AS A FUNCTION OF THE ACTUAL WAITING TIME. Note that the overestimate in the one- to 15-minute actual-time category is only apparent, since the mean actual time waited in that category was 10.64 minutes.

D. DISCUSSION

One must recognize the fact that the present study differed from the Mann-Taylor research on several dimensions simultaneously (including the commodity availability, cultural context, length of queues, and the perceptual and social differences of waiting in cars *vs.* on foot). The importance of these differences is, however, considerably reduced by the fact that certain

features of the Mann-Taylor findings were replicated, as predicted, whereas others were not, also as predicted.

In short, the present research limited the generality of the Mann-Taylor results. When the amount of the desired commodity was unknown, people far from the beginning of the waiting lines did not underestimate the number of those who had priority to the commodity. Instead, without a critical point being involved, they grossly underestimated the waiting-time duration, and the more so the farther they were temporally from the commodity.

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GROUP RESPONSES TO TERRITORIAL INTRUSION*[1]

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SUMMARY

This study examined group reaction to intruders who were assigned to sit at tables in the student union which were reserved for fraternity and sorority members. There were 116 intrusion attempts (trials). Independent variables included the number of intruders (which varied from one to five), space available at the table, and the sex of the territorial group. Results indicated that female groups directed more communication to the intruders than did male groups, and females also directed more friendly communication to the intruders than did males. A curvilinear relationship was found between space available and amount of communication with the maximum amount of communication occurring when one to four seats were available. Number of intruders was not related to amount or type of communication.

A. INTRODUCTION

Social scientists have fairly extensively studied invasion of personal space or individual territory in human beings (3, 4, 8). However, they have not systematically examined the parameters which affect a group's response to the invasion of group territory. The present study attempts to remedy this situation by studying invasions of fraternity and sorority tables in the student union at Loyola University, Chicago.

Although studies of territorial behavior in animals have generally emphasized aggressive responses to intrusion (1, 5), one only has to recall anthropological accounts where intruders were greeted with presents and offers of good will instead of being boiled for supper to realize that invasion

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[1] The author wishes to thank Dr. Homer H. Johnson for his helpful suggestions throughout this project.

of group territory is not always met with aggression. Thus, in the present study it seemed more appropriate to focus on the lack or presence of social communication to the intruders, as well as the type of social communication (i.e., friendly or unfriendly). Although there is little theory on which to base predictions, three variables were chosen that seemed relevant determinants of the frequency and type of social communication exhibited by the group: (*a*) sex of the group, (*b*) amount of space available after intrusion, (*c*) the number of intruders.

Two previous studies (2, 9) have indicated females have greater tolerance than males for close contact with like sexed others. Similarly Ziller and Behringer (10) found that females were more easily integrated into a new classroom situation than males. Thus, in the present study it was hypothesized that (*a*) females would direct more communication to intruders than male groups, and (*b*) that the communication of female groups would be more friendly than the communication of male groups.

A second variable that appears relevant to the group response is the amount of space available after intrusion. In the present experiment this was operationally defined by the number of seats available at the table after intrusion. It was hypothesized that (*a*) the amount of communication to the intruders would vary inversely with the space available and (*b*) that amount of unfriendly communication (relative to friendly communication) would vary inversely with space available. The first hypothesis is based on the assumption that propinquity facilitates social communication, and the less space available, the closer together (spatially) will be the group members and intruders (6). The second hypothesis is based on the assumption that the less the space available, the greater the intrusion interferes with group activity. For example, when there is no space available, the intruders would be occupying seats "reserved" for group members while these group members would have to stand. It is hypothesized that this interference with group activity would increase unfriendly communication on the part of group members.

A third variable that appears relevant to group response is the number of intruders. It was hypothesized that communication to the intruders, particularly unfriendly communication, would increase directly with the number of intruders. The basis for this hypothesis is the assumption that the larger the number of intruders, the more space they would take up and the more their intrusion would be perceived as an attempt to "take over" the territory.

B. Method

1. *Subjects*

An initial observation of the student union at Loyola University indicated that members of 11 organizations consistently occupied specific tables. Although these tables were not officially assigned to the organization, it was generally accepted that these tables were for group members only and signs with the organization's initials were often placed in the center of the table to further emphasize the organization's territorial claim. Of these 11 organizations, eight were of exclusively male membership (seven fraternities and ROTC), and three were of exclusively female membership (sororities).

2. *Design*

The three independent variables of this study were the sex of the group, amount of space available after intrusion, and number of intruders. The experimental assignment of intruders to groups was based on an attempt to maintain an equal number of intrusion attempts in each of possible combinations of the three independent variables. There were a total of 116 intrusion attempts (trials).

3. *Procedure*

Freshmen in introductory psychology served as intruders in this experiment and received laboratory points for their participation. Those persons who agreed to participate were instructed by the *E* to take a seat at the table without asking permission of the group members at the table. If a single intruder was used, he was told to engage in some activity (e.g., study, eat lunch, etc.). If more than one intruder was used, they were told to interact with one another so that they would be perceived as a group. The intruders were instructed not to initiate any social communication with the group members. If the group members initiated any communication, the intruders were told to respond in a pleasant manner but not to leave the table if they were asked to do so. The intruders were always of the same sex as the territorial group. No intruder knew or was known by the members of the infiltrated group, and no intruder was used on more than one intrusion attempt.

As the intruders were sitting down at the group table, the *E* positioned himself at an adjacent table so that he could clearly observe the group

reactions and movements. The intrusion was terminated by a prearranged signal from the *E* to the intruders. The intruders then met in a different part of the union and were interviewed as to their observations during the intrusion.

4. *Dependent Variables*

Any communication by any group member was originally coded into one of three categories: (*a*) friendly communication; (*b*) ignore; (*c*) unfriendly communication. However, for analysis purposes two dependent variables were created: amount of communication and type of communication. Amount of communication was operationally defined as the number of trials on which any communication (friendly or unfriendly) was directed toward the intruders by the group. Although this operational definition ignored the duration of the communication or the number of group members communicating to the intruders, not much information was lost because communication tended to be brief and infrequent. For those trials where some communication to the intruders did occur, the trials were classified into one of three categories: (*a*) friendly; (*b*) unfriendly; (*c*) mixed. The mixed category refers to those trials where some group members communicated to the intruders in an unfriendly manner, while other group members communicated to the intruders in a friendly manner.

C. Results

1. *Overall Communication to Intruders*

Social communication to the intruders occurred on 32% of the trials, and the intruders were ignored on 68% of the trials. This difference was statistically significant ($\chi^2 = 15.21$, $df = 1$, $p < .001$). Of the trials on which social communication to the intruders occurred, friendly communication occurred on 27% of these trials, unfriendly communication on 60%, and both friendly and unfriendly communication on 14% of these trials. The difference between the number of friendly trials and the number of unfriendly trials was statistically significant ($\chi^2 = 4.50$, $df = 1$, $p < .05$).

2. *Sex of Group*

Table 1 presents the data relevant to the testing of the sex effect. Some trend appears indicating that female groups directed communication to the intruders on a greater percent of the trials than did male groups; however, the difference between the two sex groupings was of borderline significance

TABLE 1
AMOUNT AND TYPE OF COMMUNICATION TO INTRUDERS AS A FUNCTION OF SEX OF GROUP MEMBERS AND SPACE AVAILABLE

Variable	Total No.	Trials: Any communication No.	%	Friendly No.	%	Unfriendly No.	%	Mixed No.	%
Sex of group									
Female	55	21	38	9	43	10	48	2	10
Male	61	16	26	1	6	12	75	3	19
Total	116	37	32	10	27	22	60	5	14
Seats available									
None	25	6	24	1	17	3	50	2	33
1 to 4	55	26	47	8	31	15	58	3	12
5+	36	5	14	1	20	4	80	0	0

($\chi^2 = 2.24$, $df = 1$, $p < .15$). The data also indicate that the communication of the female groups was friendly on about half the trials and unfriendly on the other half, whereas the communication of male groups was predominantly unfriendly. Mixed (both friendly *and* unfriendly) communication tended to occur infrequently for both sex groupings. The difference between the male and female groups as to percent friendly trials and percent unfriendly trials was statistically significant ($\chi^2 = 5.28$, $df = 1$, $p < .05$).

3. *Space Available*

Table 1 also presents the data relevant to the effect of space available. Space available was measured in terms of the number of vacant seats available at the group table, either no seats available (and group members forced to stand), one to four seats available, or five or more seats available. The data indicate a rather definite curvilinear trend with the most communication occurring on trials when there were one to four seats available. The difference between the three space categories was statistically significant ($\chi^2 = 12.08$, $df = 2$, $p < .01$). Table 1 also presents the type of communication as a function of space available. However, the *N*s in the high and no space available categories are too low to make any meaningful comparisons.

4. *Number of Intruders*

Chi square analysis indicated no significant differences regarding frequency or type of communication as a function of the number of intruders.

5. *Interaction Effects*

The data reported above are for the main effects of the three independent variables. In addition, all two-way interaction effects (e.g., sex of group × number of intruders) were inspected. No apparent interaction effects appeared for any combination of the three independent variables with regard to either amount or type of communication.

D. Discussion

The results indicate several findings of theoretical interest. First, it was noted that the intruders were ignored on 68% of the trials and on another 9% of the total trials the intruders received some indication of friendliness on the part of the group members. This seems to refute the campus lore

that intrusion on the fraternity or sorority tables will be met with an aggressive response by the members. It also seems to indicate that the emphasis placed on aggression as a response to territorial intrusion by such writers as Lorenz (5) and Ardrey (1) may be misplaced. However, it is also important to note that the group did not abandon its territory either. There was not the passive withdrawal by the group that has been observed by Sommer (8) and others when personal space is invaded. Thus, rather than aggression or withdrawal, the dominant mood was one of peaceful co-existence. We would venture the hypothesis that similar results would be found in most studies of territorial intrusion in which the territory is not rigidly defined by fences, statute, or tradition.

The hypotheses regarding sex of the group as a determinant of frequency and type of communication received moderate support. Some trend was found for female groups to direct social communication to the intruders on more trials than did male groups. Also, male groups directed very little friendly communication to the intruders, whereas for the female groups the communication was friendly in nearly half of the trials in which social communication occurred.

Contrary to expectation, frequency of communication was curvilinearly related to space available, with lesser amounts occurring when more or no seats were available. The fact of little communication when there were a large number of seats available is not surprising. In this situation usually only a couple of group members were seated at one end of the table with the intruders seated at the other end. Thus the intruders were somewhat isolated from the group members. When there were one to four seats available, the intruders and group members were closer together which should foster more communication. However, the frequency of communication dropped off when there were no seats available (and group members were forced to stand). This of course goes against the hypothesis that more communication, especially of an unfriendly nature, should occur when group activity is interrupted. Perhaps making group members stand is not a sufficient interruption of group activity, as they were still able to continue their conversations.

It should also be noted that space available is somewhat confounded by another variable, the number of group members (rho = .45, $p < .001$). Since more group members tended to be present when there were no seats available, perhaps the intruders were ignored because there was so much group activity going on. Perhaps Simmel's (7) theorizing regarding the newcomer in the group better explains this phenomenon. If the group is

sufficiently large, the newcomer elicits only a minor reaction from the group—in a sense he becomes "lost" in the group. It appears that our intruders may have become "lost" in the group when there was no space available. Clearly in future research it would be desirable to separate the effects of space available from the effects of number of intruders.

The result also failed to find any relationship between the number of intruders and the frequency or type of group communication to the intruders. Apparently, within the limits of our manipulation, number of intruders has no effect on group reaction. Perhaps with a larger number of intruders, the group members may not have seen this as merely a territorial intrusion but rather as an attempt to "take over" the territory, and they would react to "defend" the territory. Thus difference in the number of intruders may be a qualitative rather than quantitative difference with the important distinction being whether it is viewed (by the group members) as an intrusion or as an attempted "take over."

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PHYSICAL ATTRACTIVENESS AND PERSONAL SPACE*[1]

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SUMMARY

Experiments in the laboratory and on a sidewalk examined the influence of sex and physical attractiveness on personal distance. In the laboratory 30 male and female college students approached posters showing attractive or unattractive target persons, and subject-poster distances were measured with a tape. On a sidewalk an attractive or unattractive male or female interviewed 102 adult male and female passing pedestrians, and interviewer-*S* distances were recorded by a camera on a rooftop. *S*s in the laboratory approached attractive targets more closely than unattractive ones, but on the sidewalk attractiveness had no effect.

A. INTRODUCTION

Personal distance is the distance that an organism customarily places between himself and others of the same species (8, 13). A good deal of research has been directed toward explaining differences among people in their personal distance (2, 9, 16). Age, sex, cultural factors, personality, and mood all seem to influence the distance one keeps between himself and others (1). Focusing upon the actor, however, fails to consider the essentially social nature of personal distance. Distance is affected by the characteristics of both parties in a social interaction. There are persons whom one stands away from, just as there are those whom one approaches closely. The present study examined whether one approaches equally close to attractive and to unattractive persons.

Berscheid and Walster (3) have reviewed the evidence for a pervasive bias in favor of physically attractive persons. Byrne, London, and Reeves

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(9) found greater liking for attractive strangers than for unattractive ones. The bias seems to manifest itself most strongly in first impressions, where there is relatively little else to go on. And in these first impression situations, where there is an encounter among strangers, personal space can easily be studied.

Two experiments were conducted on the effects of physical attractiveness on personal distance. The first was done in a laboratory with distance measured openly with a tape measure. The second was done on a sidewalk with distance measured unobtrusively with the use of a 8-mm movie camera.

B. Experiment 1: Laboratory

1. *Method*

Measures were taken of how close *S*s approached posters showing the head and shoulders of another person. Each *S* approached posters showing attractive and unattractive male and female targets.

*S*s were 15 male and 15 female students enrolled in introductory psychology classes at Georgia State University. The targets which *S*s approached were made from four full-face photographs. The photographs were enlarged to slightly greater than life size, and the head and shoulders were cut from the enlarged photographs and mounted on beige poster board. The photographs showed an attractive female, an unattractive female, an attractive male, and an unattractive male, all of whom had pleasant smiling expressions. The quality of the attractive photographs was somewhat better than that of the unattractive photographs, both in density of negative and sharpness of focus. The delicacy of the problem of recruiting ugly persons to pose for photographs led us to use as models one man and one woman. Changes in glasses, hairstyle, double chins, expression, and makeup (e.g., eyebrow pencil on the woman's teeth rather than her eyebrows) made these two persons appear very pretty or very ugly.[2]

*S*s reported singly for the experiment, where they were met by the *E* (PHP) and taken into an anteroom. *S*s were told they would approach several posters and that they should consider the poster as representing a casual acquaintance with whom they were about to have conversation. An acclimation period was provided during which each *S* approached several objects (a hat rack, a full length mirror, and an artist's easel) to a comfort-

[2] We wish to express our thanks to Mark Evans and Judy Piat, two handsome people who were ugly for science.

able distance. The *S* was then taken into the experimental room and asked to approach each poster. Posters were hung two feet apart alternating attractive female, unattractive male, unattractive female, and attractive male. Order of approaching the four posters was randomly determined for each *S*. Posters were hung with the top of the head either high (75 inches) or low (65 inches) from the floor. Distance to which the *S* approached was measured from the eye of the *S* to the eye of the poster target, with the use of a cloth tape measure.

After approaching each poster once the *S* left the room and completed a brief background questionnaire. While he was completing this questionnaire the *E* adjusted the height of the posters on the wall from high to low or low to high position. The *S* then returned to the experimental room, approached each poster, and distances were again measured.

2. *Results*

The data were analyzed with a four-way mixed analysis of variance, with sex of *S* as a between-*S* factor and attractiveness, sex, and height of target as within-*S* factors. The height variable produced no main effect and one four-way interaction which could not be readily interpreted, and hence will not be discussed further. There were two effects of attractiveness. First was a main effect of distance being less when *S*s approached an attractive rather than an unattractive target ($\overline{X} = 26.5$ *vs.* $\overline{X} = 28.2$), $F(1,28) = 27.97$, $p < .001$. Second was a three-way interaction of sex of *S* with sex and attractiveness of target, $F(1,28) = 5.61$, $p < .05$. Females approached attractive members of either sex more closely than unattractive ones ($\overline{X} = 23.9$ *vs.* $\overline{X} = 27.2$); males approached attractive females more closely than unattractive ones ($\overline{X} = 29.8$ *vs.* $\overline{X} = 26.6$), but did not distinguish in their approach between attractive or unattractive males ($\overline{X} = 29.4$ *vs.* $\overline{X} = 28.8$).

C. Experiment 2: Sidewalk

1. *Method*

The results of the first study followed a reasonable pattern, but they were obtained in an artificial setting. The basic question of how physical attractiveness affects social interaction requires that one examine a more truly social situation. In the second experiment attractive or unattractive interviewers stopped pedestrians on a sidewalk, and the distance between pedestrian and interviewer was measured unobtrusively.

*S*s were 51 male and 51 female pedestrians on a sidewalk near Georgia State University. All *S*s were white, with a median age estimated to be in the mid to upper twenties.

Two interviewers, one male and one female, were made up to appear attractive and unattractive. Glasses, wigs, and theatrical makeup were used to produce an unattractive condition. The female wore a short and somewhat unkempt and frizzy wig, dark red lipstick, pale face powder, and black horn-rimmed glasses. An eyebrow pencil was used to produce black shadows under the eyes and "dirty" teeth. The male target wore black horn rimmed glasses and wet his medium length hair and slicked it back. In the attractive condition the female target had long hair and wore flattering makeup and no glasses. The male had medium length hair and was considered naturally attractive. Neither interviewer wore glasses in the attractive condition. Similar dress was used in the two conditions. The effectiveness of the conditions was confirmed by colleagues and acquaintances among the pedestrians who failed to recognize the targets in the unattractive condition.

Data were collected between 1:00 and 3:00 p.m. on each of two days, with each of the four conditions run each day. The interviewers took 30-minute turns on the sidewalk, with the order of running the interviewer conditions varied on the two days. Interviewers stood near the sidewalk curb and stepped out across the sidewalk as each *S* approached along the side opposite them, approaching each *S* in as similar a manner as possible. *S*s were asked two general questions about a new park in the vicinity.

The exchange between interviewer and *S* was filmed with a movie camera mounted on a parking lot overhang four stories above the sidewalk and focused upon an area about 10 feet square. A Minolta D-10 super-8 movie camera was used, mounted with an intervalometer set to film at the rate of one frame per second. An *E* turned the camera on as each *S* approached and turned it off as the *S* departed. This procedure provided a record of distance and, since one frame was taken each second, a measure of how long each *S* stayed with the interviewer. At this rate a standard three-minute cassette lasts for one hour of data collection.

The film was scored with the use of a glass rear-projection screen, set at such a distance from the projector that one inch on the screen represented one foot on the sidewalk. With the overhead camera view the line between interviewer and *S* was always parallel to the camera, eliminating the problem of variations in angle that arise when a camera is on the same level as the *S*. Distance was measured between the centers of body mass of

S and interviewer. Distance sometimes changed during the course of the interview, and a mean distance was computed from the three frames nearest the center of the interaction with each *S*. Distances were scored jointly by two scorers working together.

2. *Results*

The data were analyzed with a three-way unweighted means analysis of variance combining sex of *S* and sex and attractiveness of interviewer. Results showed distance was not affected by attractiveness or sex.

D. Discussion

The present study, in conjunction with other recent investigations, makes it necessary to reconsider the notion that physical attractiveness has an unconditional power to attract. A number of studies indicate that attractiveness has positive effects, either in the ascribing of desirable traits (5, 7, 12, 15), or in *S*s' preferences for future interaction with the other (4, 15). But each of these studies has either employed paper and pencil techniques or arranged contrived, brief interactions between *S*s.

More recent studies have recognized the artifical character of these situations and the likelihood that results obtained in this manner might not be applicable in natural settings. Huston (10) approximated more realistic circumstances by introducing the possibility of rejection in making a choice for a dating partner. He found that male *S*s selected less attractive partners unless they were assured acceptance by more appealling females. Krebs and Adinolfi (11) had college freshmen sociometrically evaluate their peers after two months of dorm living. Surprisingly they found that the most physically attractive *S*s were among the most rejected. Stokes and Bickman (14) found that attractive others were asked for help less frequently than unattractive others. They concluded that what is beautiful is unapproachable. A later study by Dabbs and Stokes (6) which more closely approximates the present work, found that pedestrians on a sidewalk maintained a greater distance from an attractive female than from an unattractive one. Dabbs and Stokes concluded that beauty is power, and that one approaches a beautiful other very cautiously.

Beauty in the abstract, as in a picture, is attractive and inspires all manner of positive attribution. But beauty in the flesh provokes a different reaction. In our society beauty implies a certain power and status. We suggest that *S*s on the sidewalk in our study had mixed motives. Beauty

was attractive and they would have liked to approach it, but even with the tacit invitation to come forward and be interviewed they were hesitant. *S*s will approach a beautiful picture readily, but in a real social situation beauty will be approached circumspectly if at all.

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ASSESSMENT OF THE PSYCHOSOCIAL ENVIRONMENT OF THE CLASSROOM: THE CLASS ATMOSPHERE SCALE*[1]

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SUMMARY

The Class Atmosphere Scale (CAS) was developed to assess systematically the psychosocial environment of public junior and senior high school classes. Twelve content subscales, each consisting of 10 items, measure consensual environmental press. Analyses are based upon data collected from 479 urban junior and senior high school students and their six teachers. Psychometric properties of the CAS are described, and profiles are constructed to compare average student-teacher perceptions of their classes. The CAS represents an assessment instrument applicable to both treatment and classroom environments through identical psychosocial dimensions.

A. INTRODUCTION

Teachers and administrators recognize class atmosphere to be important for student behavior. Thus, the classroom can provide an opportunity for research into the psychosocial environment (PSE). The present study utilizes this opportunity by developing a method for measuring classroom PSE.

The PSE recurs in considerations of human behavior. Cattell (3), Lewin (9), and Murray (18) include environmental perception variables in their theories. Moos (10, 11, 13, 14), Moos and Houts (15), Moos and Otto (16),

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[1] Requests for copies of the instrument, scoring key, and tables showing details of the results reported in this paper should be sent to the first author at the address shown at the end of this article. Authors are indebted to Rudolf H. Moos for his helpful comments and criticism. The senior author appreciates his personal encouragement. Authors are also grateful to Patricia H. O'Neill for helpful advice, Dorothy P. Simmons for assistance in data analysis and editing, Terri H. Johns and Susan L. Korfanty for technical assistance, and Charles P. Pautler and Susan A. Horowitz, Computer Systems Branch, for computer programming.

Stern (19), and Trickett and Moos (20) describe methods for measuring the PSE in situations covering a broad range of functions (teaching, treatment, production) and levels of structural complexity (institution, industry, organization, ward, rehabilitation center, classroom). However, these instruments are not designed for application in more than one setting. For example, Trickett and Moos (20) develop a Classroom Environment Scale (CES) consisting of items and dimensions which do not essentially correspond with those Moos used earlier in therapeutic settings. The present approach is unique among the different scales for measuring classroom PSE. The Class Atmosphere Scale (CAS) derives from and is congruent with the Ward Atmosphere Scale [WAS (15)] for psychiatric wards. The CAS is also comparable to the Community-Oriented Programs Environment Scale [COPES (12, 13)] for community-based therapy.

The current approach purposely utilizes items and dimensions equivalent to those available for evaluation of mental health interventions. Such unitary measurement encourages evaluation of therapeutic efficacy in terms of PSE changes in other milieus. The CAS permits a better understanding of the mutual influence between treatment and classroom settings. Furthermore, this approach can facilitate the development of therapeutic intervention models with *measurable* impact on youth.

B. Method

An instrument containing 120 true-false content items was administered to a pilot sample of six different teachers and 479 students from 30 classes. The public junior and senior high schools selected were located within a 10-mile radius of the center of a large Eastern city. The surrounding community was part of a transition zone between the inner city and nearby suburbs.

CAS items refer to patterns of behavior that can serve as discriminators among classrooms and teachers. For each statement, the respondent answers *true* if it is generally characteristic, and *false* if generally not characteristic of the PSE of his classroom. Most of the items in the CAS were adapted from WAS Form B and modified appropriately for teachers and students within junior and senior high schools. Of these alterations, 66.2% consisted of form changes in WAS items—e.g., "ward" to "class"—29.2% constituted more substantial modifications, and 4.6% remained unchanged. The initial choice of items by Moos and Houts (15) was guided by the concept of environmental press developed by Murray (17). Like its WAS and COPES analogues, the CAS measures the consensual, environ-

mental beta press. Operationally, beta press represents the characteristic demands or features of the PSE as perceived by those who live or function in it. This press (17, 19) is to be distinguished from the objective, ecological environment, the alpha press (1).

The CAS employs the same 10-item press dimensions as the WAS: *viz.*, Aggression, Submission, Autonomy, Order, Affiliation, Involvement, Insight, Practicality, Spontaneity, Support, Variety, and Clarity. Each of these dimensions reflects a different facet of PSE. For example, one item from the Aggression subscale is "Class members often gripe." Subscale scores range from 0 through 10 and indicate the number of items perceived as a press toward the particular dimension.

In the instrument, 10 additional items control for acquiescence response set. These items are designed to detect individuals with strong halo and inconsistency in their perceptions of the classroom environment. For example, one halo item is "This is the most interesting class I could possibly imagine." Halo and Inconsistency subscale scores are generated in two ways. For the Halo subscale, a sum is calculated for positive items marked *true* and negative items marked *false*. For the Inconsistency subscale, a sum is computed for items, either positive or negative, marked *true*. Thus, Halo indicates the tendency to accept positive and to reject negative extreme items. Inconsistency measures the inclination to accept extreme items of any sort, including contradictory ones.

Table 1 shows the distribution of the sample across 30 classes. These urban junior and senior high school classes are in Art, Mathematics, English, Science, and Music. Four teachers and approximately one-half of the students (46.4%) are female. The range in female composition by class varies from 7.7% to 100%.

TABLE 1
DISTRIBUTION OF STUDENTS AND CLASSES BY TEACHER

Teacher no.	Subject	No. students	No. classes	% Females
1	Art	72	5	57.1
2	Mathematics	136	6	47.9
3[a]	English	69	5	67.6
4	Art	81	6	50.6
5	Science	26	2	50.0
6	Music	95	6	33.7

[a] Teacher No. 3 is a senior high school teacher; all others are junior high school teachers.

C. Results

Appraisal of the CAS items indicates the following for each of the criteria stated below:

1. The items significantly ($p < .05$) discriminate among classes and teachers. One-way analyses of variance are calculated for each of the 130 items by class and by teacher cluster. Approximately 77% of the items selected do distinguish ($p < .05$) among classes, and 70% do so among teacher clusters. In both cases, 83.1% of the items differentiate at a significant ($p < .05$) or trend ($p < .10$) level.

2. The percentage of individuals answering an item in one direction should be as close to 50 as possible. However, for analytic purposes, a range of 20% to 80% may be used to indicate items which are not characteristic of extreme classes or teacher clusters. By class, 123 of the 130 items (95%) have item splits which are between 20% and 80%; by teacher cluster, 120 (92%) have this range of item splits.

3. Each of 14 subscales has 10 items, five worded positively and five worded negatively. This scoring protocol controls for acquiescence response set. All CAS subscales meet this criterion.

For the halo and inconsistency items, criteria opposite to those stated in points 1 and 2 are utilized. In contrast to the criterion of no discrimination, nine of these items differentiate significantly among classes and nine do so among teacher clusters. On the average, not more than four of the halo-inconsistency items meet the criterion of acceptance more extreme than a 20%-80% split (15, p. 598).

Results from one-way analyses of variance indicate that all 14 subscales significantly ($p < .05$) differentiate among the 30 classes, as well as among the six teacher clusters. These results show the 12 content subscales perform as designed, while the Halo and Inconsistency subscales do not.

Estimated omega-square (6) is used to calculate the percentage of each subscale's "total variance" accounted for by differences among the 30 classes, as well as among teacher clusters. These percentages range from a low of 4.0% on Submission to a high of 19.0% on Involvement for the by-class analyses. By cluster, they range from 1.2% for Autonomy, to 12.1% for Spontaneity. The average percentage by class is 11.2%, and by cluster, 6.5%. These percentages are likely to vary considerably depending on the classes sampled and clusters studied. However, present results do indicate that the average percentage of variance accounted for is more than expected by chance. Explained variance can be attenuated by a restricted range of social factors (age, socioeconomic status) for the students. In a

later section, the profile differences demonstrated by subscales with low omega-square indicate the usefulness of these subscales.

Internal consistencies are calculated with the use of Cronbach's alpha (4, 19) and average item-subscale correlations. Approximately 88% of the items correlate ($N = 509$) above .30 with their own subscale. Of the remaining item-own subscale correlations, only 4% are less than .25 (.22 to .25). Item-own subscale correlations are much higher than item-other subscale correlations. All of the subscales, with the possible exception of Autonomy, have relatively low but acceptable internal consistency as specified by alpha.

Subscale intercorrelations have been calculated to determine if the subscales represent independent dimensions. Only one of the 66 intercorrelations is above .50: *viz.*, Affiliation and Support. Twelve of the 66 intercorrelations range between .30 and .50. These involve the dimensions of Order, Affiliation, Involvement, Practicality, Support, and Clarity. The average correlation among the 12 subscales is .146. Thus, the press dimensions do seem to measure rather distinct, albeit slightly correlated, characteristics.

Several salient demographic characteristics (class size, class duration, total time in class, age, sex, and years of education) have been correlated with subscale scores. For individuals, total time in class, age, sex, and years of education are not highly correlated with any of the subscales. This suggests that within the limits surveyed, these characteristics have only slight effect on the perception of PSE. However, correlations indicate that class size and duration have some effect upon several atmosphere dimensions.

The dimensions used in the present work are also utilized in studies by Moos and Houts (15) and Hemphill and Westie (7). This congruence helps establish face validity for the current instrument. More definitive validity assessment requires data which are independent of the CAS. Moos and Houts (15) successfully validate all 12 content subscales by correlation with external criteria. In the present work, data are available for validating only three of the subscales. For the six teachers, extensive personal data provide such a basis for comparison. Data derive from three independent psychometric instruments: *viz.*, Postsession Questionnaire (PSQ); Followup Questionnaire (FQ); and postsession Free Association Test [FAT (5)]. These instruments yield dimensions that are equivalent to the CAS subscales Aggression, Involvement, and Support. While the CAS subscales concern data on the psychosocial environment in which teachers have the major

role, the three independent instruments pertain to data concerning only the individual teacher. The Pearson r is employed to evaluate the degree of correspondence between the three CAS subscales and their equivalents within the other instruments. As Table 2 shows, the correlations are relatively high for all comparisons. Thus, these subscales are indicators of their specified dimensions.

In order to evaluate test-retest reliability, the CAS was readministered to 45 students and their three teachers. Table 3 shows the resulting Pearson r subscale coefficients and Spearman r_S profile coefficients. Moos and Houts (15) report a mean test-retest r of .71 for the WAS with a one-week interval. When the classes are analyzed separately, reliability in almost all subscales may be obtained for the appropriate classroom situation: i.e., nonchanging over the time interval involved. The relatively low r values for Classes 46 and 40 are apparent and are discussed below. Close agreement exists between the profile stability coefficient ($r_S = .86$) shown in Table 3 and those reported by Moos and Houts (15) for their one-week and eight-week intervals (.92 and .95).

Sample profiles have been prepared. These compare mean CAS scores on each of the 14 subscales standardized on the basis of the mean score for the 30 classes. These z scores (2) are calculated for the mean subscale values of the teacher and students in a particular class.

Figure 1 shows the mean CAS profiles of two English classes essentially equal in size and in male-female composition. These classes were conducted by the same teacher in the same physical arrangement. Class 55 is higher than Class 52 on the dimensions of Submission, Autonomy, Insight, and Inconsistency. Class 52 is higher for Aggression, Order, Affiliation, Involvement, Practicality, Spontaneity, Support, Variety, Clarity, and

TABLE 2
CORRELATIONS (PEARSON) BETWEEN CLASS ATMOSPHERE SCALE (CAS) SUBSCALES AND THEIR EQUIVALENTS IN THREE INDEPENDENT INSTRUMENTS

CAS subscale	PSQ	FQ	FAT
Aggression	.78**	.49	.66*
Involvement	.66*	.69*	
Support	.86***	.77**	

Note: $N = 6$ teachers. PSQ = Postsession Questionnaire; FQ = Followup Questionnaire; FAT = Free Association Test.
* $p < .10$.
** $p < .05$.
*** $p < .01$.

TABLE 3
TEST-RETEST RELIABILITY COEFFICIENTS FOR CLASS ATMOSPHERE SCALE (CAS) SUBSCALES (PEARSON), AND PROFILES (SPEARMAN RHO) AT ONE-MONTH INTERVAL

Subscale	Teacher 3 Class 53 (N = 10)	Teacher 2 Class 46 (N = 23)	Teacher 1 Class 40 (N = 15)	Students and teachers (N = 48)
1. Aggression	.93	.26	−.09	.48
2. Submission	.22	.37	−.39	.27
3. Autonomy	.48	.01	.03	.17
4. Order	.75	.14	.10	.33
5. Affiliation	.36	.36	.12	.41
6. Involvement	.88	.68	.52	.63
7. Insight	.81	.42	.41	.53
8. Practicality	.77	.56	.00	.53
9. Spontaneity	.77	.15	.22	.40
10. Support	.72	.41	.21	.33
11. Variety	.44	.34	−.27	.20
12. Clarity	.61	.24	.17	.27
13. Halo	.48	.34	−.04	.20
14. Inconsistency	.79	.52	.39	.60
$\overline{X}$ (r)	.64	.34	.10	.38
Profiles (r_S)	.92	.90	.66	.86

Halo. The maximum z score difference between the two classes occurs in the Involvement dimension ($p < .001$).

Similarities and contrasts in acceptance of items by Classes 52 and 55 are instructive. In both classes, 100% of the individuals agree, "Class members can wear what they want"; only 19% to 20% agree, "Class members are careful about what they say when the teacher is around." However, in Class 52, 80% agree, "Class members here really try to improve," and only 20% of Class 55 accept this item. From the profiles compared, classes taught by the same teacher can be seen to vary markedly in PSE.

Figure 2 illustrates profiles of two Art classes approximately equal in size, but unequal in male-female composition. These classes are conducted by different female teachers. Class 61 is higher than Class 40 in the subscales of Aggression, Autonomy, Affiliation, Involvement, Insight, Practicality, Spontaneity, Support, Variety, and Clarity. The two classes have approximately equal z scores for Variety. Class 40 is higher in Submission, Order, Halo, and Inconsistency. The maximum z score difference occurs in the Autonomy subscale.

For Class 40, the maximum agreement (94%) is obtained on the item, "Teacher tells class members when they are doing well." In Class 61, 100% agree with this item. A contrast between these two classes may be seen for the item, "In this class the teacher thinks it is healthy to argue," in that

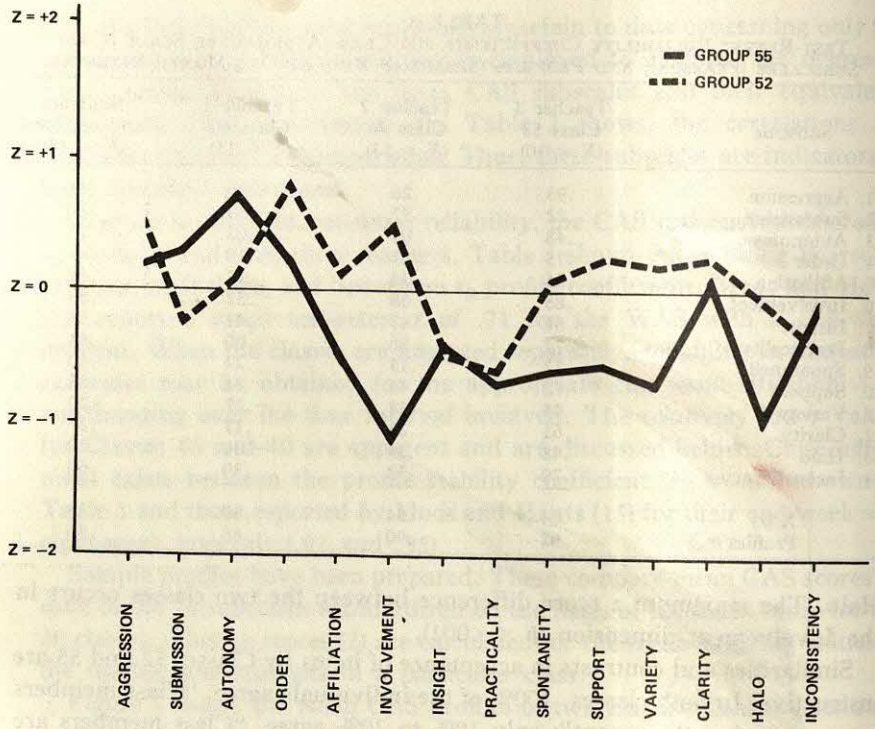

FIGURE 1
COMPARISON OF CAS Z SCORE PROFILES FOR ENGLISH CLASSES 52 (N = 15) AND 55 (N = 16) OF TEACHER 3 (FEMALE).
Classes contain 60% and 69% females, respectively.

49% of Class 61 and only 6% of Class 40 accept this statement. The profiles suggest that Class 40 has a relatively authoritarian environment in contrast to Class 61.

Figure 3 compares profiles of an Art and a Music class approximately equal in size though unequal in male-female composition. The Art teacher is female and the Music teacher is male. Class 58 (Art) is higher than Class 77 (Music) in the categories of Submission, Autonomy, Order, Affiliation, Involvement, Practicality, Spontaneity, Support, Variety, Clarity, and Halo. Class 77 is higher in Aggression, Insight, and Inconsistency. The maximum z score difference between the two classes occurs in the Autonomy dimension.

For both Classes 58 and 77, 100% of the members agree that, "Class

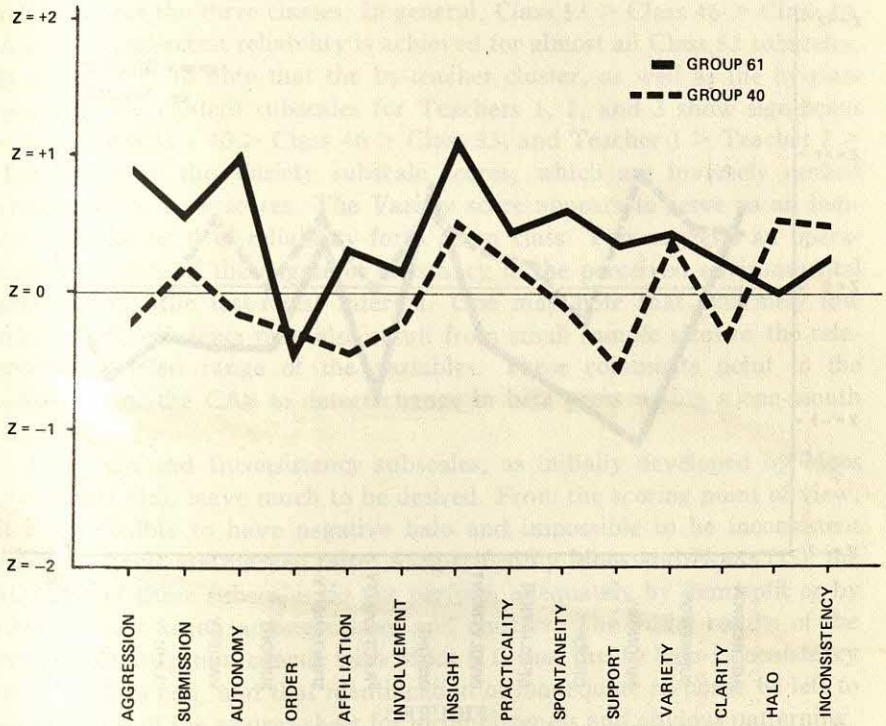

FIGURE 2
COMPARISON OF CAS Z SCORE PROFILES FOR ART CLASSES 40 (N = 17) AND 61 (N = 15) OF TEACHERS 1 AND 4 (FEMALES).
Classes contain 47% and 67% females, respectively.

members sometimes play practical jokes on each other." Ninety-two percent of Class 58 and only 15% of Class 77 agree, "Class members often do things together immediately before or after the class meeting." Class 58 apparently has more cohesion than Class 77.

D. DISCUSSION

In attempting to assess the CAS, several points are noteworthy. In contrast to its analogues (WAS and COPES), the population studied is primarily youth at the level of secondary education, and thus much younger than those examined in the treatment milieus. The urban youth of this study represent only a very limited sampling of schools and school systems. From item analysis, one observes that 22 items do not discrimi-

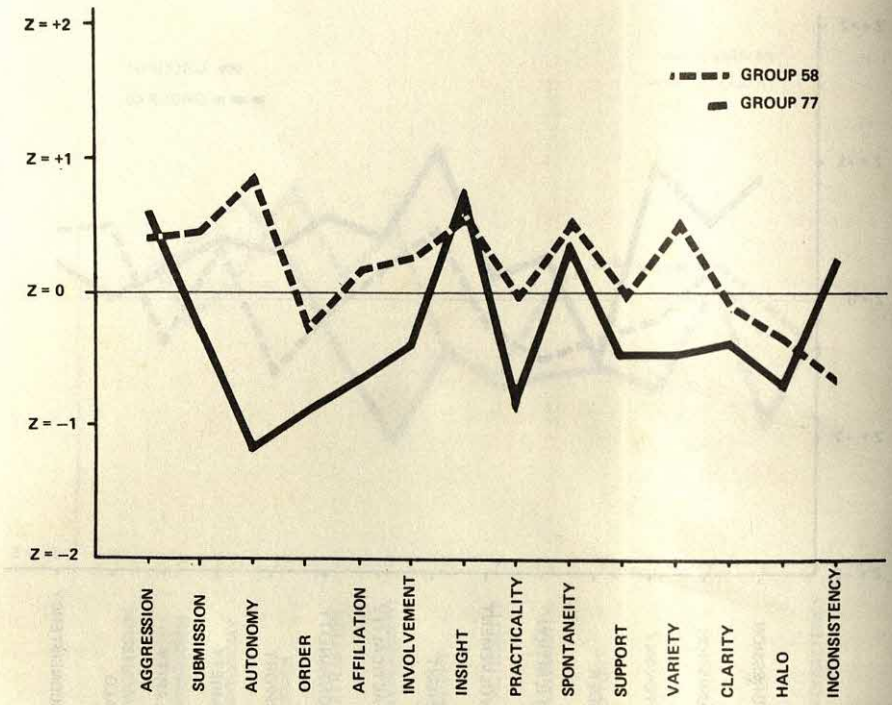

FIGURE 3
COMPARISON OF CAS Z SCORE PROFILES FOR ART CLASS 58 (N = 13) AND MUSIC CLASS 77 (N = 11) OF TEACHERS 4 (FEMALE) AND 6 (MALE).
Classes contain 46% and 9% females, respectively.

nate among classes or teacher cluster of classes at a trend or better level. These more universal positive or negative characteristics may be useful for discriminating among very different school and/or role settings. For subscale analysis, the combined criteria of Cronbach's alpha (internal consistency), omega-square (total variance), and average item-subscale correlation indicate that the Autonomy and Submission subscales, in general, do not show the strength indicated by the other content subscales. However, one-way analyses of variance show that all subscales significantly ($p < .05$) differentiate among the classes and teacher clusters. The profile and profile stability results suggest that the CAS instrument has general utility. Analyses of the factor structure of the CAS will be the subject of a future publication.

Analysis of results in Table 3 indicates three different levels of test-retest

reliability for the three classes. In general, Class 53 > Class 46 > Class 40. Adequate test-retest reliability is achieved for almost all Class 53 subscales. It is pertinent to note that the by-teacher cluster, as well as the by-class scores of the content subscales for Teachers 1, 2, and 3 show significant differences (Class 40 > Class 46 > Class 53, and Teacher 1 > Teacher 2 > Teacher 3) in the Variety subscale scores, which are inversely ranked compared to the *r* scores. The Variety score appears to serve as an indicator of the level of reliability for a given class. This suggests an operational measure of the degree of constancy in the perceived environmental press during the test-retest interval. One may note that extremely low reliability coefficients may also result from small sample sizes or the relatively restricted range of the variables. These comments point to the sensitivity of the CAS to detect change in beta press within a one-month interval.

The Halo and Inconsistency subscales, as initially developed by Moos and Houts (15), leave much to be desired. From the scoring point of view, it is impossible to have negative halo and impossible to be inconsistent when all items are marked false. As specified by Moos and Houts (15), the 10 items of these subscales do not perform adequately by item split or by item discrimination among classes and clusters. The initial results of the present investigation concur with Moos (11) that the 10 halo-inconsistency items be dropped, and that identification of inadequate response be left to surveillance of the answer sheet for incompleteness and obvious patterning.

The CAS is fairly simple and easy to administer. Used for institutional, teacher, or classroom self-analysis, the CAS may enhance knowledge of the consensually perceived press and permit the determination that a particular PSE fits classroom goals. CAS subscale profiles can help identify the minimum, maximum, and median focal points of the classroom PSE; the degree of change in these dimensions; the level of agreement between teachers and students; and the participants with deviant perceptions of their environment. The CAS is applicable to the comparative measurement of different organizational environments and thus may have general implications for assessment, prediction, and change in the PSE of schoolrooms.

If, as noted by Laszlo (8), values are indices of subject-environment interactive states, then the CAS may be pertinent for an experimental approach to human values. Future work may delineate some of the consensual behavioral effects generated by exposure to similar ranges of CAS dimensional scores. Subsequent CAS studies may specify some of the need-press interactive effects of the public school classroom. Since the

problems of the urban public school are especially intense, there is need for combining analytic approaches, such as the CAS with synthetic approaches, such as mental health interventions in the school system.

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DETERMINANTS OF PERCEIVED AGGRESSION*[1,2]

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SUMMARY

It was hypothesized that similar coercive actions performed by the same actor would result in differential attributions of aggression by observers depending on the instigatory or defensive character of the action.

One hundred and forty male and female *S*s viewed either live or videotaped scenarios depicting instigatory or responsive (offensive or defensive) use of coercive power (threat or force), or a control condition in which no altercation occurred. In both studies, offensive use of coercion was rated as significantly more aggressive than defensive use of coercion. The actors who used harm-doing coercion defensively were perceived as significantly ($p < .05$) less aggressive than all other actors with the exception of the actor who used no coercion ($p > .10$). The results were interpreted within a framework of a coercive power model of interpersonal influence and as consistent with attribution theory.

A. INTRODUCTION

The area of contemporary interest among social psychologists is attribution theory (9, 10, 11). This exciting and explosive field of study has as its focus the investigation of how people view each other and by inference derive causal statements concerning not only behavior of self and others but feeling states as well. From the framework of attribution theory it appears that traditional interpretations of many problems in social psychology may have suffered from failure to distinguish between target and observer inferences and evaluations. This lack of distinction seems most readily apparent in the studies of aggressive behavior.

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[1] Requests for reprints should be sent to the second author at the address at the end of this article.
[2] This report is based on a dissertation and replication of that dissertation carried out by the senior author. The initial study was conducted in partial fulfillment of the requirements for the Ph.D. degree at the State University of New York at Albany, and was supported by Grant #GS-27059 from the National Science Foundation to the second author.

The most consistent definition of aggression has been in terms of harm-doing behaviors (e.g., 1). Although inclusive in nature, the actual application of this definition within theoretical frameworks has disallowed certain harm-doing behaviors, most notable being those associated with accidents. For instance, an individual who spills hot coffee on someone at the dinner table is not likely to be called aggressive by either the target or by observers. In addition, attempts to inflict harm which fail have also been excluded from consideration. A person who tries but fails to injure another person (who remains ignorant of the attempt) may not be called aggressive by the target but may be so called by an observer. Although the use of harm-doing as a necessary variable in the investigation of aggression is important in terms of behavioral analysis, the examples cited have led social psychologists to include the notion of intent to do harm in their definitions of aggression (3, 5). It is obvious that intent is not a behavior but rather an inference drawn from circumstances, behavior, and the orientation of the target and/or observer. As Bandura (1) noted, "People come to judge certain actions as aggressive on the basis of a variety of criteria, some of which are grounded in the behavior, while others are extraneous to it and quite subjective" (1, p. 5). In other words, intent is not a property of behavior but is rather a phenomenological property ascribed to the target by the observer.

Given this orientation, some types of aggression would properly fall within the areas of attribution or person perception theories. Thus, Blumenthal, Kahn, and Andrews (6), after surveying the ways in which looters, demonstrators, and draft card burners are labeled, were led to state that violence, like truth and beauty, is in the eye of the beholder and is not intrinsic to the referent action. The clear implication is that values play a large part in determining the label applied to a particular individual.

The lack of clarity concerning the notion of intent is a major source of difficulty in operationalizing the concept of aggression. Intent generally refers to a motivational factor inferred from behavior which appears to be volitional or nonaccidental. In the paradigms used in the laboratory—e.g., setting shock intensities (4) or hitting dolls (2)—it is clear that such activities are not accidental. The motivation of the actor, however, may still be in question in the mind of the observer, since the underlying reasons for the actor's performance may not be evident. The notion of intent remains ambiguous, since such laboratory studies almost never clearly establish the intent of *S*s.

The definition of aggression as intent to do harm implies that the actor's behaviors are unjustifiable by mores or laws which serve to regulate the

behaviors between members of a particular society or one of its subgroups. Heider (8) classified unjustified acts as deriving from malevolent intent. The question of justified harm and the attendant problem of malevolent intent is important, since the answer to such a question lies primarily in the difference between actions which are considered normative and legitimate and those actions which are not so considered.

Tedeschi, Smith, and Brown (14) proposed that aggression would be attributed to an actor when the actions of that actor met three criteria. (*a*) The observer perceives an action as intentionally detrimental to the interests of either the observer's or target person's interests, whether or not the actor *really* intended to do harm. (*b*) The action is viewed as unprovoked, offensive, or disproportionate to a provocation. Implied by this criterion is that an actor may intentionally harm another's interests and not be labeled as aggressive if the actor is viewed as acting defensively. (*c*) The action taken is viewed as antinormative or illegitimate. Of course, the legitimacy or normativeness of an act is clearly a product of the perceiver's value system.

The criteria suggested above imply that aggression could be analyzed utilizing a coercive power model of interpersonal influence. The use of such a model would derive relationships between antecedents and consequents of a more precise nature than those derived from current models of aggression. As Hartup noted, "The developmental course of human aggression may be best understood by means of a differentiated 'functional analysis' of the problem . . . How does it [aggression] work?" (7, p. 340). Coercive power is employed when other, alternative means of influence are perceived by the source of influence as not likely to be successful in obtaining compliance to a demand or request. The attributions and labels applied by observers to the source of coercive power may depend, however, more on situational factors, such as constraints and opportunities, rather than on the coercive action, itself.

The initial study of this series was designed to test the above attribution theory. The offensive or defensive use of threats or force was the factor manipulated in the 2 by 2 factorial design. Each group of *S*s viewed a brief, live dramatization enacted by skilled performers from the State University of New York at Albany's Theatre Department.[3] In the offensive conditions, one actor initiated an altercation by issuing a threat or by

[3] The authors take this occasion to acknowledge the superb expertise of the performers, Langdon Brow, Bob Harrell, James Kemma, and Carolyn Schembri; the scenario directors, Arthur Allen, Lou Dunn, Susan Welch, and Marilyn Zatt; and Professor James Leonard who provided aid and advice at all stages of the study. The joining of the arts and science was an exciting experience.

issuing a threat followed by an attempted delivery of noxious stimulation (i.e., a punch to the head). In the defensive threat condition, the defensive actor responded to threat by issuing a counterthreat, and in the defensive force condition, the defensive actor responded to force with counterforce (i.e., he punched the offensive actor in the midsection). A control group of *S*s viewed the basic scenario, which contained no use of coercive power, so that any actor differences could be assessed. In all conditions, *S*s were asked to provide their impressions of the two male actors in the scenario on a series of bipolar adjectives.

B. Experimental 1

1. *Method*

a. Subjects and experimental setting. A total of 78 *S*s, 41 female and 37 male, partially fulfilled a course requirement by participation. They signed up on one of five separate sheets labeled as a study of impression formation. Each sheet specified a different time during a single day to report to a theatre in the Performing Arts Center. Space was provided for 10 females and 10 males on each sheet. Cell inequality resulted as a consequence of incomplete sign-ups and no shows. The cell *S*s were control = 15, offensive threat = 11, offensive force = 15, defensive threat = 21, and defensive force = 16.

Three actors and one actress, graduate students in drama and enrolled in a course in direction, participated in all five scenarios. One male always enacted the role of bartender, one male acted as the female's companion, and one male acted as the protagonist. In the two offensive conditions and the control condition of the experiment, actor A played the role of protagonist and actor B played the role of companion of the female. In the defensive conditions, the actors changed roles—actor A played the companion and actor B played the role of the protagonist. Although *S*s rated the actions of both actors, the critical ratings were of actor A in all conditions. Thus, comparisons between offensive and defensive conditions involved the ratings of the same actor.

The stage was set to represent a tavern. The bar was constructed of wood, approximately 1-1/2′ wide, 4′ long, and 3′ in height. In front of the bar were three metal stools with cushioned seats and short leather backs. On top of the bar were glasses. No actual liquid was used in the scenarios; the mixing of drinks was simulated. Two boxes at stage left were used to designate the bar entrance. *S*s sat in the dress-circle (first three rows) spaced so that one seat separated them from each other.

b. Procedure. Upon reporting for the experiment, *S*s were asked to wait outside the theatre while the *E* checked their names against the sign-up sheet. After they filed into the theatre and were placed in their seats, the *E* gave the following instructions:

"The scene you are about to see is an enactment of an actual interaction which took place in a middle-class bar in a large city. Please pay close attention to the action. You will be asked to rate the actors at the end of the scene. Directions to begin and end the scene will be given from the rear of the theatre."

When the command "begin" was given, the bartender entered from stage left, walked immediately to his place behind the bar and began wiping off the top of the bar. An adult female and male then entered from stage left, holding hands. The couple walked toward the bar and took seats adjacent to one another. The couple ordered their drinks and after a bit of conversation, the female asked to be excused.

Upon the exiting of the female, a *second* male (protagonist) entered the bar and approached the seat just vacated by the female partner of the *first* male (companion). The companion informed the protagonist that the seat the protagonist desired was already taken. The experimental manipulations then commenced as follows:

(1). *Control Condition.* In this condition, the protagonist responded to the information by replying, "Oh! I beg your pardon."

(2). *Offensive Threat Condition.* In this condition the protagonist responded as follows:

(Pausing, facing companion, leaning on bar and pointing to vacant stool) "That's my seat! I always sit there. Are you looking for a rap in the mouth or something?" The companion then responded by saying: "But there are plenty of other seats at the bar." The scene ended at this point.

(3). *Offensive Force Condition.* All the action in this condition was the same as that just described with the addition that the protagonist moved toward the companion and swung at him with his fist. The companion ducked the punch and the scene ended.

(4). *Defensive Threat Condition.* The action in this condition was the same as that described above with the following exceptions: The male who played the part of the protagonist assumed the role of the companion as a means of controlling actor stimuli. The response to the threat was as follows: "If you hit me, I'll knock the shit out of you." The scene ended.

(5). *Defensive Force Condition.* The action in the condition was the same as that just described with the following exceptions: The companion did not issue a counterthreat. After ducking the punch of the protagonist,

the companion struck the protagonist in the stomach causing the latter to fall against the bar. The scene ended at this point.

After the completion of each scene, the *E* gave the following instructions to *S*s. "At this time, please rate Person A (pointing to the protagonist in the Control and Offensive conditions and to the companion in the Defensive conditions) and Person B (pointing to the companion in the Control and Offensive conditions and the protagonist in the Defensive conditions)."

The *E* then distributed a set of forms to each *S*. The form consisted of two pages of polar adjectives; each page was identical except that the first page indicated ratings for Actor A and the second indicated ratings for Actor B. The bipolar adjectives were rated on seven point scales, scored from +3 to −3. Two pairs of adjectives were designed as manipulation checks; offensive-defensive and actually harmful-potentially harmful. The first pair should discriminate between ratings of protagonist and companion and the second pair should discriminate between the use of threat and force. Eight pairs of adjectives were included to measure the Evaluative and Potency dimensions of the Semantic Differential (12). The four items summed to measure Evaluation were as follows: good-bad, honest-dishonest, beneficial-harmful, and kind-cruel. The items summed to measure Potency were as follows: strong-weak, severe-lenient, rash-cautious, and hard-soft. The three critical items were the following: aggressive-nonaggressive, hostile-amicable, antagonistic-friendly.

2. *Results*

a. Preliminary data analyses.[4] The ratings of *S*s indicated that the manipulations of the experiment were successful. The actual use of force was perceived as more actually harmful ($\overline{X} = .558$) than the use of threats ($\overline{X} = -.775$, $F = 2.854$, $df = 1/61$, $p < .05$). The ratings of Actor A indicated that he was perceived as more offensive ($\overline{X} = 1.915$) when he was the protagonist than when he acted the role of male companion ($\overline{X} = 1.598$; $F = 8.941$, $df = 1/61$, $p < .001$).

It was possible for effects to result from differences between the actors due to dress, speech, manner of presentation, age, physiognomic characteristics, etc. For this reason Actor A served as the critical actor and analyses compared him in the offensive conditions with himself in the defensive conditions. When Actor A acted the role of defensive male

[4] The original data analyses partitioned sex as a factor. Sex produced no significant effects either by itself or in interaction with other factors. In order to simplify presentation of the results, sex was collapsed, and the data reanalyzed.

companion, Actor B played the role of protagonist. Thus, comparisons could be made between Actor A in the offensive threat condition and Actor B in the defensive threat condition, since in these conditions they played the same role. Similarly, Actors A and B could be compared in the control conditions where no actual threats or force were used by either actor. *t* tests indicated that there were no differences between actors in any of the comparisons on any of the measures (all *p*s $> .10$).

b. Primary analyses. Both factors of the experiment and their interaction (shown in Figure 1) produced significant effects on *S*s' ratings of Actor A's aggressiveness; Duncan multiple range tests (shown in Table 1) indicated that Actor A was seen as quite aggressive when he played the role of protagonist irrespective of whether he used threat or force. Actor A was rated as significantly less aggressive when he played the role of companion and used threats defensively. The most striking result was that the least

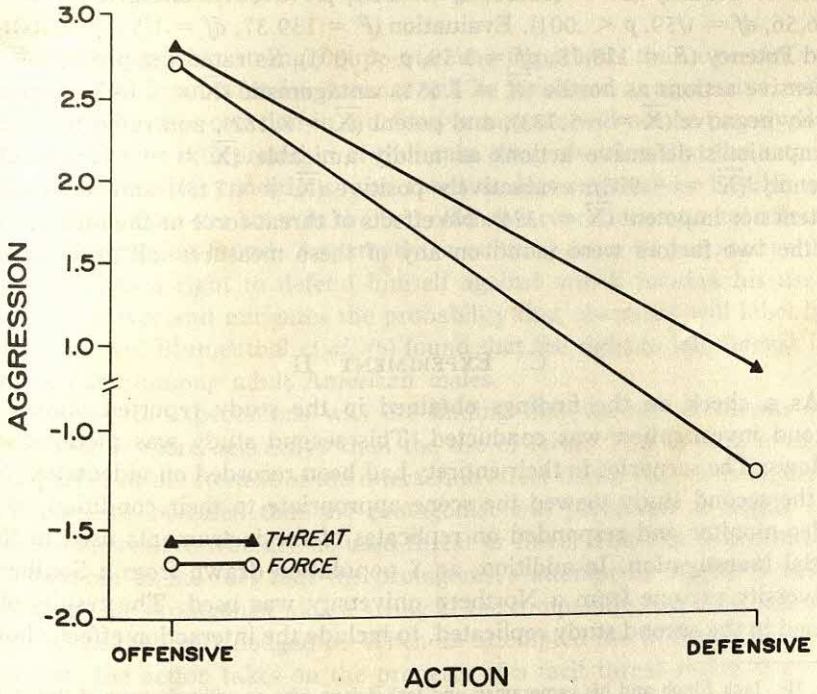

FIGURE 1
ACTION X MODE OF COERCIVE POWER INTERACTION ON RATINGS OF AGGRESSION

TABLE 1
SUMMARY OF DUNCAN RANGE TESTS OF MEAN RATINGS OF AGGRESSIVENESS [a]

Instigation	Mode of coercive power	
	Threat	Force
Offensive	2.818_a	2.733_a
Defensive	$.095_b$	-1.312_c

[a] Means with different subscripts differ at $p < .01$ level by Duncan multiple-range test, while those with common subscripts do not differ ($p > .05$).

aggressive rating was given to Actor A when he played the role of companion and used force defensively. That is, in the only condition in which any harm was actually mediated by either actor, the actor who perpetrated the harm was perceived as significantly less aggressive than any other actor in any other condition of the experiment.

Main effects of the offensive-defensive factor were found on the measures of hostility ($F = 122.28$, $df = 1/59$, $p < .001$), antagonism ($F = 136.56$, $df = 1/59$, $p < .001$), Evaluation ($F = 139.37$, $df = 1/59$, $p < .001$), and Potency ($F = 138.75$, $df = 1/59$, $p < .001$). *S*s rated the protagonist's offensive actions as hostile ($\overline{X} = 2.651$), antagonistic ($\overline{X} = 2.697$), evaluatively negative ($\overline{X} = -5.733$), and potent ($\overline{X} = 8.182$), and rated the male companion's defensive actions as mildly amicable ($\overline{X} = -.912$), mildly friendly ($\overline{X} = -.905$), evaluatively positive ($\overline{X} = 4.713$), and as neither potent nor impotent ($\overline{X} = .321$). No effects of threat-force or the interaction of the two factors were found on any of these measures (all ps $> .10$).

C. EXPERIMENT II

As a check on the findings obtained in the study reported above, a second investigation was conducted. This second study was modified as follows: The scenarios in their entirety had been recorded on videotape.[5] *S*s in the second study viewed the scene appropriate to their condition on a video-monitor and responded on replicates of the instruments used in the initial investigation. In addition, an *S* population drawn from a Southern university *vs.* one from a Northern university was used. The results obtained in the second study replicated, to include the interaction effect, those

[5] Mr. Jack Finch and his cameramen and technicians who so willingly gave of their time and expertise in the taping of the scenarios deserve much of the credit for the success of the investigation.

revealed in the initial experiment. Details of the replication can be obtained by writing the senior author.

D. Discussion

Inspection of the preliminary analyses allows a rather clear statement concerning the effectiveness of the experimental manipulations and rejection of hypotheses related to possible individual differences between actors or interactions between actors and roles. Actor A was perceived as more offensive when he acted out the role of protagonist than when he acted the role of the defensive male companion. *S*s perceived the use (or attempted use) of force as more actually harmful than the use of threat. When a comparison was made between actors in the control condition, no differences on any of the rating scales were found. A comparison of the ratings of Actor A in the offensive threat condition with the ratings of Actor B in the defensive threat condition revealed no differences between actors. Thus, when different actors played the same role, they were rated in the same way.

The primary data strongly supported the hypothesis that a person who uses coercion in an offensive manner will be perceived as aggressive, while a person who uses coercion in a defensive manner will not be perceived as aggressive. The interpretation of the main effect showing that the actor in the two defensive conditions was rated as less aggressive, hostile, and antagonistic than the actor in the two offensive conditions was not affected by the interaction found. Apparently, a cultural norm in our society that a person has a right to defend himself against attack justifies his use of coercive power and mitigates the probability that observers will label him as aggressive. Blumenthal *et al.* (6) found that the right to self-defense is a strong norm among adult American males.

Contrary to expectations was the finding that the use of threats was perceived as more aggressive than the use of force. This finding must be interpreted in the context of the interaction effect that is shown in Figure 1. Comparisons revealed that the protagonist was perceived as highly and equally aggressive whether he used threat or force. This result is probably attributable to the fact that the protagonist's attempt to use force failed. Although the protagonist took a swing at the companion, the blow failed to land when the latter dodged it. When an attempted use of force fails in its purpose, the action takes on the property of a tacit threat rather than the actual use of force. Any action which communicates only the intention to use force is a threat, whether that communication is delivered verbally or

tacitly through behavior. Of course, only future research can establish that if the protagonist's blow had actually connected, the actor would have been perceived as more aggressive than when his attempt to harm the other person failed. A related hypothesis is that the more pain the source causes the target to suffer as a result of the offensive use of coercion, the more aggressive the source will be perceived to be.

The most surprising aspect of the above interaction was that the actor who used threat defensively was perceived as more aggressive than the actor who used force defensively. In retrospect, this finding appears to be consistent with attribution theory. The attribution made about a particular person will be a function of the behavioral alternatives perceived as available to that individual in a situation. The greater number of alternatives an actor is perceived as having available, the more information his actual choice conveys to an observer concerning the actor's preferences, motives, or values. This principle of the attribution process can be derived from Thibaut and Kelley's (15) concept of the comparison level of alternatives. They proposed that an actor will always evaluate any particular decision in terms of the expected outcomes associated with the perceived alternatives. The actor's decision choice will reflect a rule of maximizing expected outcomes. Given that the probabilities of outcomes associated with the alternatives are equal, the choice made will reflect the values of preferences of the actor. An observer, therefore, can infer the preferences of the actor from the latter's decisions.

It must have been clear to the *S*s in the present experiment that the male companion in the defensive threat condition could have chosen a number of alternative means of deterring the attack of the other person. Instead of retaliating with a threat of his own, the companion could have attempted to persuade the protagonist that a more peaceful solution was in order. The companion could have offered to move down a seat, move to a table, leave the scene altogether, etc. The companion's choice of issuing a counterthreat may have indicated to *S*s that he was not averse to engaging in an altercation with the protagonist and, in fact, might relish the conflict; hence, the companion received a mildly aggressive rating. Nonetheless, the fact that the counterthreat was issued in an apparent attempt to dissuade the protagonist from further escalation of his attack was apparently sufficient justification to prevent strong attributions of hostile or aggressive intentions to the defensive actor.

The male companion in the defensive force condition had little decision latitude in the situation. Steiner (13) postulated that when an actor has no decision latitude and when he cannot freely choose but acts under con-

straint or coercion, observers cannot make any inferences about what the actor is like, as discriminated from other persons. Similarly, when an actor's behaviors can be attributed to immediate environmental factors (i.e., are manded) and the actor does what most other people would do under the same circumstances—i.e., "common effects" (9)—then the observer can make no attribution about the dispositions, intentions, or values of the actor. Since timing of the use of counterforce was so quick as to suggest a reflex-like action rather than one that was well thought out or planned, its manded character may have been emphasized.

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ETHNOCENTRISM IN BLACK COLLEGE STUDENTS*

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SUMMARY

A 40-item Likert-type scale was developed for measuring black ethnocentrism. The Black Ethnocentrism Scale (BES) consists of 20 items assessing problack sentiment (Pro-Black Subscale, PBS) and 20 items assessing antiwhite sentiment (Anti-White Subscale, AWS). Split-half reliability coefficients based on the responses of 99 black college students were .88 for the PBS, .87 for the AWS, and .91 for the total BES. Test-retest reliability coefficients were .82, .80, and .87 for the PBS, AWS, and BES respectively. Evidence of construct validity for the *BES* was indicated by positive correlations with the California F and E scales. Pro-Black scores were positively related to Anti-White scores ($r = .73$), and data comparing a 1953 sample of black students to a 1974 sample indicated that in contrast to the earlier sample, the latter tended to disagree with anti-Negro ideology and to agree with antiwhite ideology.

A. INTRODUCTION

Negroes have become "blacks," and it appears that this relabeling is not merely euphemistic—rather it seems to reflect an ongoing metamorphosis in self-esteem. Recent empirical studies have in fact shown that black peoples' attitudes toward themselves have become more favorable. For example, studies essentially replicating the classic Clark and Clark (4) paradigm have found that black children now prefer black dolls to white dolls (5, 6); this is a reversal of earlier findings. Assuming that blacks have developed more positive feelings about themselves, it is interesting to ask: How do blacks now feel about whites?

Logically, it is possible for a black person to be highly problack without being antiwhite; empirically, however, this relationship would seem unlikely. That is, since many blacks view the white majority as responsible

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for black frustrations, it seems probable that there would be a positive correlation between problack and antiwhite attitudes. This expectation has been substantiated by several recent studies. Banks (2), for example, found that awareness and pride in being black were positively related to negative feelings about whites. Paige (7) also found that antiwhite attitudes were positively related to feelings of black pride and black identity. Caplan (3), however, reviewed several riot studies and concluded that, in spite of some inconsistencies, black militancy does not appear to be associated with increased hostility toward whites.

One explanation for the apparent inconsistency of results across studies dealing with the same problem is that the studies often are not really comparable. This is particularly true with respect to the dependent variable measure. For example, problack sentiment as assessed by participation in social confrontations is probably not the same as that shown by an *S*'s preference for a black doll.

A goal of the present research is to help alleviate this measurement problem by developing a scale for assessing problack and antiwhite sentiment. The authors are also interested in further investigating the relationship between problack and antiwhite attitudes.

There apparently is not a scale for measuring problack attitudes, although there are several scales designed to measure anti-Negro feeling (e.g., 8). Being problack, however, is not the same as having low anti-Negro scores. After all, one could score low on anti-Negro scales, and yet be neutral with respect to being problack.

It is assumed in the present study that blacks are becoming increasingly ethnocentric, and that black ethnocentrism involves both problack and antiwhite components. On the basis of these considerations, the following predictions were made: 1) Problack scores will be positively correlated with ethnocentrism. 2) Antiwhite scores will be positively correlated with ethnocentrism. 3) Problack scores will be positively correlated with authoritarianism. 4) Antiwhite scores will be positively correlated with authoritarianism. 5) Problack attitudes will be positively correlated with antiwhite attitudes. 6) Black students are currently less antiblack. 7) Black students are currently more antiwhite.

B. Method

1. *Development of a Black Ethnocentrism Scale*

a. Preliminary scale. The original pool of scale items consisted of 80 problack and 60 antiwhite statements specifically written for the Black

Ethnocentrism Scale (BES). From these items, 64 were selected by the investigators for the preliminary scale. This scale was of the seven point Likert-type, and half of the items were problack, and half were antiwhite. The position of the items on the scale was randomly determined.

b. Preliminary Ss. The preliminary scale was administered to 126 black students (42 males and 84 females) enrolled in general psychology at a predominantly black Southern college.

c. Item analysis. The scores on each item were correlated with the total scores for each subscale, and the 40 items (20 problack, and 20 antiwhite) that correlated most highly with the total scores were selected for the final scale. The items selected for the Pro-Black Subscale (PBS) had product-moment correlations ranging from $r = .30$ to $r = .53$, and the median correlation was .38. The items comprising the Anti-White Subscale (AWS) had correlations ranging from $r = .30$ to $r = .48$, and the median correlation was .35. The final form of the BES is presented in the Appendix: odd items are problack and even items are antiwhite. Except for this restriction, all items were randomly assigned.

d. Reliability of the scale. The final form of the BES was administered to a new sample of 99 black general psychology students. Split-half reliability coefficients were computed by correlating odd with even items. The reliability coefficients, corrected by the Spearman-Brown formula, were .88 for the PBS, and .87 for the AWS. The corrected split-half reliability for the total scale was .91. In addition, test-retest reliability coefficients were obtained for 53 of the *Ss* after a time interval of four weeks. These coefficients were .82, .80, and .87, respectively, for the Pro-Black, Anti-White, and total scales.

2. *Procedure*

a. Subjects. Data for testing the predictions were obtained from a new (1974) sample of 92 black students enrolled in general psychology classes. Twenty-six of the students were males and 66 were females. These *Ss* answered all questionnaires anonymously, and all questionnaires were administered by a black person during the regular class period.

b. Instruments. The following attitude scales were administered: the Black Ethnocentrism Scale, the Authoritarianism Scale (F), the Ethnocentrism Scale (E), Steckler's Anti-White Scale (AW), and Steckler's Anti-Negro Scale (AN).

The BES has already been described. Adorno *et al.* (1) developed the F and E scales which were designed to measure authoritarianism and ethnocentrism respectively; these scales have been used extensively in per-

sonality research. In the present study, the anti-Negro items on the *E* scale were excluded.

The Anti-White and Anti-Negro scales were developed by Steckler (9). Each of these scales consists of a number of statements expressing negative stereotypes about the group in question. For example, one item from the AW scale is, "The world might be a better place if there were fewer white people." An item from the AN scale is, "Negroes would solve many of their social problems if so many of them were not irresponsible, lazy, and ignorant."

C. Results and Discussion

The intercorrelations, means, and standard deviations for the scales are presented in Table 1.

The intercorrelations provide evidence of construct validity for the BES subscales. Specifically, with respect to the Anti-White Subscale, it was expected that scores on this scale would be positively related to scores on other antiwhite scales. The significant positive correlation (.72) between the AWS and the AW supports this expectation. It was also expected that if the two scales were measuring the same construct, they would show similar patterns of correlations with other scales. An inspection of Table 1 shows that the correlations between the antiwhite scales and each other scale are remarkably similar. Specifically, the respective correlations for the AWS and the AW were .73 and .68 with the Pro-Black Subscale, −.01 and .01 with the Anti-Negro Scale, .26 and .28 with the F Scale, .31 and .30 with the E Scale. Within each of these pairs of correlations, none of the differ-

TABLE 1
Intercorrelations, Means, and Standard Deviations for the Scales

Scale	AWS	PBS	BES	AW	AN	F	E
AWS		.73**	.91**	.72**	−.01	.26*	.31**
PBS			.85**	.68**	−.06	.27**	.32**
BES				.71**	−.04	.25*	.31**
AW					.01	.28**	.30**
AN						.51**	.33**
F							.56**
Mean	4.33	4.74	4.49	4.94	3.66	4.56	4.28
SD	.95	.90	.93	1.14	1.41	.92	1.22

Note: All statistics are based on $n = 92$. AWS = Anti-White Subscale; PBS = Pro-Black Subscale; BES = Black Ethnocentrism Scale; AW = Anti-White Scale; AN = Anti-Negro Scale; F = Authoritarianism Scale; E = Ethnocentrism Scale.

* $p < .05$.

** $p < .01$.

ences between the correlations was significant. Both antiwhite scales thus appear to be measuring the same construct.

With respect to the Pro-Black Subscale, it was logical to expect that people strongly in favor of their own ingroup would tend to be somewhat authoritarian and also ethnocentric. This expectation was supported by the significant positive correlations of the PBS with the F and E scales. Table 1 shows that these correlations were .27 and .32, respectively. These relationships provide some construct validity for the PBS. No relationship was found between the PBS and the Anti-Negro Scale ($r = -.06$); this was consistent with the statement made in the introduction that being problack was not the same as having low antiNegro scores.

In general, the obtained pattern of intercorrelations provides evidence of construct validity for the Pro-Black and Anti-White subscales.

Predictions 1-5 were analyzed on the basis of the intercorrelations shown in Table 1. The significant correlation of .32 between PBS and E scores supports Prediction 1. That is, problack sentiments are positively related to ethnocentric attitudes. The significant correlation of .31 between the AWS and E indicates that antiwhite sentiments are also positively related to ethnocentrism. This finding directly supports Prediction 2. Predictions 3 and 4 were supported by the fact that the PBS and the AWS were positively correlated with authoritarianism ($r = .27$ and $r = .26$ respectively).

Of particular interest in the present study is the high positive correlation of .73 between PBS and AWS scores. This indicates that problack students also tend to be antiwhite.

In sum, the intercorrelations in Table 1 suggest that black students who are highly problack are somewhat authoritarian, and highly antioutgroup—particularly antiwhite. Since ethnocentrism characteristically involves strong proingroup sentiments combined with strong antioutgroup sentiments, it seems that the BES is in fact measuring a type of black ethnocentrism.

Given that problack scores are positively related to antiwhite scores, how high did the current sample of *S*s score on the scales? The means for the male and female *S*s on each of the scales were first tested for possible sex differences. The only scale on which males and females differed significantly was on the E scale. Females were more ethnocentric than males; the respective means were 4.49 and 3.75, $t\ (90) = 2.71$, $p < .01$. Because there were no other sex differences, the data for males and females were combined for all other analyses.

Table 1 shows the means and standard deviations of the responses of all *S*s to all scales administered. A score of 4.0 is considered to be the neutral point on a seven-point Likert continuum. Consequently, mean scores higher than 4.0 indicate a tendency to agree with the ideology of a particular scale, and scores lower than 4.0 suggest a tendency to disagree with it.

In order to determine if the obtained scale means were actually different from the neutral point, confidence intervals were established for each mean score in Table 1. For all scales, except the E scale, the score of 4.0 was beyond the 99% confidence interval limits established for each mean. With respect to the E scale mean, the neutral point fell outside the 95% confidence limits. Therefore, it is highly probable that all obtained scale means actually are different from neutral.

As shown in Table 1, all but one of the mean scores were above the neutral point. As expected, the black students' mean score (3.66) on the AN scale is below the neutral point. This indicates a rejection of anti-Negro statements. Relatively high mean scores were made on the Anti-White Scale (mean = 4.94) and on the Pro-Black Subscale (mean = 4.74).

In general, the pattern of mean values obtained for all scales suggests that the present sample of black college students tended to disagree with anti-Negro statements and to agree with problack, antiwhite, authoritarian, and ethnocentric ideologies.

The results of the present study contrast sharply with earlier findings. Table 2 shows the mean scores of the present (1974) sample and Steckler's 1953 (9) sample of black college students on the Anti-White, Anti-Negro, and F scales.[1]

Steckler's 1953 sample tended to agree with anti-Negro statements (mean = 4.55), whereas the mean for the current sample (3.66) indicates that the current sample of blacks tended to disagree with anti-Negro statements. The difference between these anti-Negro means is statistically significant, t (539) = 5.74, $p < .01$. This suggests that black college students now reject anti-Negro ideology. These data support the prediction that black students are currently less antiblack.

Table 2 also shows that Steckler's 1953 sample tended to disagree with antiwhite statements (mean = 2.75), whereas the current sample tended to agree (mean = 4.94). The difference between these two means is statistically significant, t (539) = 16.85, $p < .01$, and this suggests a substantial increase in antiwhite feelings. These data tend to support Prediction 7; that

[1] Personal communication from Dr. Steckler indicated that the data for this study (9) were collected in 1953.

TABLE 2
MEAN SCORES FOR BLACK STUDENTS SAMPLED IN 1953 AND 1974 ON ANTI-WHITE, ANTI-NEGRO, AND F SCALES

Scales	1974	1953	Diff.	t
Anti-White	4.94	2.75	+2.19	16.85*
Anti-Negro	3.66	4.55	−.89	5.74*
F	4.56	4.66	−.10	.88

* $p < .01$.

is, black students are currently more antiwhite. It must be cautioned, however, that comparisons of results from the present sample with the data of Steckler's 1953 sample do of course involve different black *S*s, hence obtained differences may be due to sampling error rather than to an actual change in attitudes. Nevertheless, the prediction of decreased antiblack feeling and increased antiwhite feeling among blacks is consistent with the obtained results, and also consistent with the results of a similar comparison by Banks (2). Banks found that his 1967 black sample accepted more antiwhite ideology than Steckler's 1953 group. The mean AW score for Banks' 1967 group was 3.13 as opposed to the mean of 2.75 for the 1953 group. The difference between these two means was reportedly significant at the .05 level. The trend toward increased antiwhite feeling is indicated by the mean of 4.94 on the AW scale in the present study.

Banks also reported that acceptance of negative stereotypes by blacks about their own racial group had decreased. His 1967 mean of 3.54 on the Anti-Negro Scale was significantly different from Steckler's mean of 4.55 on this scale ($p < .01$). The present sample mean of 3.66 on the AN scale corroborates Banks' finding and indicates that blacks now reject anti-Negro statements as opposed to the tendency to accept such statements in 1953.

With respect to the last scale for comparison of the 1974 and 1953 samples, the means of 4.56 and 4.66 respectively on the F scale do not differ significantly, t (310) = .88, $p > .05$. Both sample means are above the neutral point and indicate agreement with authoritarian ideology.

The results of the present study have suggested that the attitudes of these students toward themselves had become more favorable. Instead of accepting negative stereotypes about their race, they now rejected such stereotypes. This attitudinal shift is strongly associated with increased antiwhite feeling. Thus, it would appear that the BES is measuring a type of black ethnocentrism. The significant positive correlation between the E scale and the BES (.31) also supports this interpretation.

APPENDIX

THE BLACK ETHNOCENTRISM SCALE[2]

1. If a black person and a white person were selling the same thing, I would go out of my way to buy it from the black person.
2. Most whites sympathize with the Ku Klux Klan.
3. Blacks should elect public officials of their own race regardless of the campaign issues.
*4. You cannot condemn the entire white race because of the actions of some of its members.
5. The highest duty of a man is to fight for the glory and power of his own race.
6. White men are by nature prejudiced and bigoted.
7. A political party consisting of only black members should be formed.
8. We will not have a true democracy in this country as long as whites are in power.
9. Black should forget about integration and struggle for black power.
10. Racial discrimination will not disappear until prejudiced whites are severely punished.
11. I am in favor of creating a black sovereign state within the United States of America.
*12. Blacks and whites are brothers.
13. I am for my own race, right or wrong.
14. Whites will remain oppressive even though integration is accomplished.
15. On the whole, blacks have better qualities of character than whites.
16. There is little hope for improving race relations because of deliberate attempts by whites to suppress black people.
17. We need more black leaders who speak up for black supremacy.
18. It is disgraceful for a black girl to invite a white man to her home.
19. The use of force to overthrow the unjust law is always justified.
20. Most whites who sympathize with the civil rights movement are primarily motivated by guilt or fear.
21. Blacks should focus on black pride rather than integration.
22. Court decisions are most often unjust when blacks are involved.
23. Blacks who lack "black pride" are abandoning their own people.

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[2] Odd items comprise the Pro-Black Subscale, and even items comprise the Anti-White Subscale. Asterisked items must be reversed for purposes of scoring.

24. It is a shame for a black to marry a person of the white race.
25. The black race is better than any other.
26. Whites who are friendly with blacks are only trying to use them.
27. The black community should have the right to stop other racial groups from living in it.
28. Whites must pay their debt to black people.
29. In general, black people are more creative than whites.
30. "A tooth for a tooth" is fair practice against the white man's injustice.
*31. Blacks should give their first loyalty to America instead of to their own kind.
32. Blacks should give up trying to be on friendly terms with whites.
33. Blacks, on the whole, are genetically superior to whites.
34. Blacks and whites can never get along well.
35. The U. S. Constitution should be amended to ensure that either the president or vice president of the United States would be black.
36. Only fools believe that friendliness toward whites can accomplish anything in the black peoples' struggle.
37. There should be a national black committee on education to see to it that schools teach children black culture and history.
38. Individuals who are not members of the black race should not be permitted to teach in predominantly black schools and colleges.
39. Black children, from a very early age, should be taught to be loyal to their own race.
40. White people try to keep black people down.

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HUSBAND/WIFE COMPARISONS OF PRICE-QUALITY RELATIONSHIPS IN THE POST-PURCHASE SITUATION*

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SUMMARY

Consumers' perception of the prices and qualities of products was tested under post-purchase conditions. Respondents were asked to rate their satisfaction with the purchase price, and with two verifiable components of quality—performance and durability—of a selection of 12 consumer durables. The results obtained from 85 married couples indicated that all quality and price perceptions remain highly correlated in the post-purchase situation tested. The associations between quality and price perception were stronger among the wives than among the husbands. Simultaneously, in a great majority of couples the wife was more satisfied than the husband with price and quality aspects of the products. The results are discussed in terms of Festinger's cognitive dissonance theory.

A. INTRODUCTION

Price-quality relationships have been studied extensively for *pre*-purchase situations. The relationship in its principal meaning suggests that consumers use "price" as an indicator of "quality," especially under conditions when additional cues for quality are not available.

For many products, the existence of the price-quality relationship can be experimentally verified; a comprehensive review of the literature (7) reveals, however, that there is still significant doubt as to the universality of the relationship in the *pre*-purchase situation. One of the factors contributing to the uncertainties is doubtless the fact that "quality" at this stage is merely a bundle of expectations (unless there is an opportunity for "test-consuming" the product). The price, to be sure, is a visible reality; yet the evaluation of whether it is "high" or "low," is once again a perceptual

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phenomenon, since it depends on points of reference which are highly subjective and different for each consumer.

At the time when the consumer makes the actual purchase, however, the vague nature of the quality factor of the price-quality relationship must have changed into a firm expectation: From the fact that the transaction does occur at this point, we can safely imply that the expected quality, the subjectively perceived value, of the product equals (or perhaps exceeds) the price asked for it.

What remains currently completely unknown is the fate of the price-quality relationship *after* the purchase has occurred; yet, knowledge in this area could significantly contribute to our understanding of the phenomenon of consumer dissatisfaction. Theoretically, several alternative situations could arise. The consumer could, for example, consume the product and verify, always cognizant of the price he paid, as objectively as possible its quality characteristics. "Quality" at this stage of the post-purchase situation has acquired properties which can be experienced and expressed in terms of at least two factors: performance and durability.[1] Since satisfaction is frequently closely related to expectations (2), the consumption experience could lead either to satisfaction or dissatisfaction, depending on how closely the original expectations are met. On the other hand, cognitive dissonance theory (4) would suggest that the consumer will selectively avoid information, including unfavorable quality feedback, which might endanger the previously perceived congruency between price and quality; hence, to the extent that he is able selectively to control his information intake, or, alternatively, selectively adjust his perception of how high or low the price was, he may be said to be able to maintain control over his state of satisfaction. Such selective adjustments in the perception of price and quality would also be entirely consistent with the striving for cognitive consonance observed in other areas of consumer behavior. We may recall, for example, the now almost classical finding of consumers' inclination to expose themselves selectively to advertisements which confirm the "correctness" of previous product choices (3), or, in a more recent setting, Mills' (6) experimental evidence for consumers' inclination of not merely avoiding dissonant information but also actively seeking consonant information.

[1] The meaning of price and durability may more or less carry the same perceptual connotations for all products. The meaning of performance, however, may differ with the nature of the product: for mechanical or electrical durables, performance may primarily relate to functioning without undue repairs, while for durables containing no moving components, such as furniture, carpets, or bedding sheets, performance is thought of primarily in terms of the feeling of comfort with or in them.

It is proposed that consumer satisfaction is affected by the extent to which individuals are able to maintain cognitive consonance between the price they paid for a product and the quality which they perceive in the form of performance and durability during the consumption process. The applicability of the model can be tested through the following hypotheses:

1. In the post-purchase situation consumers can minimize cognitive dissonance by adjusting selectively their perception of prices paid for products and the perception of at least two verifiable aspects of quality. The perception of satisfaction with price and performance, as well as with price and durability, should therefore be positively correlated.

2. Since a state of dissonance is a dissatisfying experience, consumers' total satisfaction with products is likely to suffer whenever the perceptual validity of the price/quality relationship cannot be maintained. Consequently, it would be expected that consumers who rank low on their total satisfaction should exhibit a significantly lower correlation between price and quality perception than those who rank high on their total satisfaction.

3. "Quality" of consumer durables can be experienced through two instrumental factors: "performance" and "durability." The perception of satisfaction with performance and durability will therefore be positively correlated under *any* conditions of total satisfaction (or dissatisfaction).

B. Methodology

In the present study, consumers' satisfaction with prices was measured through a direct question; quality satisfaction was assessed through questions on performance and durability. Such a threefold assessment of product perception has been used previously by Hansen (5). Thus, consumers were asked to indicate on a six-point Likert scale the extent to which they agreed or disagreed with a set of positively phrased statements concerning (*a*) the price of purchase, (*b*) the performance, and (*c*) the actual or projected durability of a selection of 12 consumer durables. It was requested in writing to keep the last purchase of each type of product in mind when answering the questionnaire. Numerical values, 1-6, were then assigned to the responses so as to describe increasing satisfaction with increasing numerical values.

The consumer durables selected had to meet the following criteria: (*a*) a significant amount of money must be involved in the purchase, (*b*) the consumption of the item must be experienced to some extent by both husband and wife, (*c*) the item must be commonly owned by most consumers, and (*d*) the item must contribute to obtaining a good mix of mechani-

cal, electrical, and nonmoving items. In addition, it was attempted to obtain a reasonable balance between those products where husbands might have an advantage of knowledge and those about which the wives might be more knowledgeable. The final selection included the following products: automobile, black and white television, color television, stereo set, washing machine, power lawn mower, vacuum cleaner, toaster, hairdrier, livingroom chesterfield, livingroom carpet, and bedding sheets. For the subsequent analyses, the satisfaction ratings of all items was averaged in order to obtain for each respondent one score on price satisfaction, performance satisfaction, and durability satisfaction, respectively.

The *S*s were the parents of students in the College of Family and Consumer Studies, University of Guelph. A set of questionnaires for each of their parents was given to the students before they went home for the semester recess. The questionnaires were returned in pairs of husbands and wives either through the student or through the mail. It was requested that husbands and wives not discuss the questionnaires before sealing and returning them. Out of 150 questionnaires distributed, 104 were returned within the first three weeks of the semester. The final sample consisted of the 85 couples who both completed all necessary information.

C. Results and Discussion

The first sets of results, summarized in Table 1, suggest that the price/quality relationship is principally maintained in the post-purchase situation: A highly significant correlation between price perception and performance perception, as well as between price perception and durability perception was found among both groups of respondents.

Of further interest is the contrast between the magnitudes of the price/quality correlations obtained for the husbands and wives, respectively. We observe a much greater extent of *consonance* for the wives than for the husbands—a finding that could tentatively be interpreted as expressing a greater need for cognitive consistency among females than among males. It would also appear to be consistent with recent evidence that socialization for women becomes associated with greater control of impulse and expression (1). Overall, however, it appears that hypothesis 1 is satisfactorily verified for both sexes by the data in Table 1.

The differences observed between the husbands' and wives' perceptual congruency of price and quality prompted a further exploration of the phenomena of sexual differences with the data on hand. The comparison of the mean total satisfaction of husbands (mean = 4.76, SD = .43) and wives

TABLE 1
CORRELATION COEFFICIENTS FOR HUSBANDS' AND WIVES' PERCEPTION OF SATISFACTION WITH PRICE, PERFORMANCE, AND PRODUCT DURABILITY

Measurement	Performance satisfaction	Durability satisfaction	Total satisfaction
Husbands' perception			
Price satisfaction	.38	.29	.63
Performance satisfaction	1.00	.84	.90
Durability satisfaction		1.00	.85
Total satisfaction			1.00
Wives' perception			
Price satisfaction	.69	.67	.85
Performance satisfaction	1.00	.88	.91
Durability satisfaction		1.00	.91
Total satisfaction			1.00

Note: All r values are significant at $p < .01$ (t test).

(mean = 4.86, SD = .52) revealed a state of greater satisfaction for the latter, however of a statistically insignificant magnitude.[2] In contrast, a mere count of the number of couples in which the wives were more satisfied than the husbands produces a highly significant difference for *all* factors measured: price, performance, quality, and total satisfaction. From these data, compiled in Table 2, it would appear then that wives were generally more satisfied than husbands.

Hypothesis 2 can be tested in two ways: (*a*) by a comparison of the more satisfied sample of respondents, wives, with the less satisfied sample of respondents, husbands, and (*b*) by a stratification of each of the two samples into a more satisfied section, and a less satisfied section—all those whose total satisfaction is above and below the mean, respectively.

The first type of analysis involves a comparison of the data of Table 1. In support of the hypothesis, we find for the less satisfied sample, husbands, a lower congruency between price perception and each of the quality perceptions, performance and durability.

The results of the second type of analysis, when carried out by comparing simply the relevant correlation coefficients of the lower and higher satisfied segments of the respondents, were not consistent with the hypothesis; this can be attributed largely to the effect of the much reduced sample size. A further differentiation between the more-satisfied and the less-satisfied group was therefore sought via a multiple correlation analysis. These results, shown in Table 3, reveal that for husbands the differences of

[2] Additional details may be obtained from the authors upon request.

TABLE 2
FREQUENCY OF DIFFERENTIAL PERCEPTION OF PRICE, PERFORMANCE, DURABILITY, AND TOTAL SATISFACTION BETWEEN HUSBANDS (H) AND WIVES (W)

Components of satisfaction	H > W	W > H	H = W	p [a]
Price	26	53	6	< .001
Performance	29	49	7	< .015
Durability	33	48	4	< .06
Total satisfaction	30	51	4	< .015

Note: "Equal" responses were divided proportionately between the two unequal response categories for the significance test.
[a] Binomial test.

the two subsamples' R values may lend support to hypothesis 2, while for wives the expectations were not substantiated.

Hypothesis 3 can be tested by revisiting the various correlations reported in Table 1. In support of the hypothesis, the correlation of perception between the two measures of quality, performance and durability, is very high in each of the samples. It also remained very high regardless of whether the samples were split randomly or stratified into sections of higher and lower satisfaction.[2]

D. INTERPRETATIONS AND IMPLICATIONS

The most important finding of the study is the great consistency between individuals' rating of price and quality satisfaction in the post-purchase situation. The price-quality relationship, which is usually highly positive at the point of purchase, thus appears to be maintained in the post-purchase situation. In accord with cognitive-dissonance theory, this could be the

TABLE 3
COEFFICIENTS OF MULTIPLE CORRELATION, R, AND PARTIAL REGRESSION COEFFIENTS, A, B, BETWEEN SATISFACTION RATINGS OF PRICE AND QUALITY PARAMETERS OF SELECTED SAMPLE SEGMENTS

Value determined	Husbands' satisfaction		Wives' satisfaction		Husbands Total sample	Wives Total sample
	Below av.	Above av.	Below av.	Above av.		
a	−.15	−.40	.27	−.14	.48	.46
b	−.03	.68	.37	.51	−.06	.30
c	5.28	3.60	1.61	3.29	2.77	1.19
R	.14	.43	.54	.45	.39	.71

Note: $y = ax_1 + bx_2 + c$; where y = price satisfaction, x_1 = performance satisfaction, and x_2 = durability satisfaction. c = constant.

result of consumers' ability of selectively adjusting their perception of prices paid for products and the perception of the various aspects of quality experienced so as to avoid incongruencies.

The perceptual differences established for husbands and wives in this study require a careful interpretation. To be sure, the mean satisfaction of the wives was higher than that of the husbands, but the difference was not significant at the five percent level. On the other hand, a significant majority of wives was more satisfied than their husbands. These two facts combined would seem to suggest that wives are generally more satisfied than their husbands; the small number of wives, however, who are less satisfied than their husbands, are so much dissatisfied that their low ratings reduce the overall higher mean satisfaction of wives over that of husbands to a statistically insignificant magnitude.

One of the most interesting differences found in the study is the much higher correlation between price and quality perception existing for the wives in comparison to that found for husbands. Coupled with the information of only insignificantly higher *mean* satisfactions prevailing among the wives, this might *tentatively* be interpreted as suggesting that the husbands could reach a given level of total satisfaction in spite of certain disparities between their perception of price and quality, respectively. Wives at a comparable level of total satisfaction tolerated less dissonance between price and quality perception.

It is acknowledged that the sample of respondents used for the present study may represent a relatively small section of the population; hence any generalization of the findings is subject to this limitation. Likewise, the number of products rated, and perhaps also the type of products included, could be expanded almost unlimitedly.

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FASCISM AND ATTITUDES TOWARD MANDATORY STERILIZATION: THE DEVELOPMENT OF AN ATTITUDE SCALE*

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SUMMARY

In the first part of a two-part study, 150 undergraduate and graduate college students of both sexes participated in the development of a Likert type attitude scale measuring attitudes toward mandatory sterilization. In the second part of the investigation, 58 male and 48 female undergraduate college students with a mean age of 24.2 years, participated in a study assessing the reliability of the scale, and the relationship between attitudes toward sterilization and fascism. The final scale consists of 36 items selected by the criterion of internal consistency. The scale has high internal reliability and relates moderately to fascist attitudes. It is suggested that positive attitudes toward mandatory sterilization and fascism have common ideological roots in the predominant emphasis on the nature rather than the nurture of human behavior.

A. INTRODUCTION

The concept of mandatory sterilization for socially handicapped or undesirable persons has a long history. During the Nazi era in Germany a number of so-called undesirable persons were sterilized without voluntary permission. In other societies the pros and cons of mandatory sterilization as social policy for the retarded or the habitual sexual criminal have been intensely debated. The possible abuse of sterilization was vividly reported in the case of several young black teenage girls in the South of the United States who were sterilized without their own or the parents' permission. The discriminatory nature of sterilization can clearly be used as a means of oppression of minorities of various types. For example, many minority children are classified "low" in intelligence or "retarded" on the basis of

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intelligence tests developed on white middle-class populations. There are some who believe that these differences in intelligence have dominant genetic components (5), although this view has been attacked as illconsidered or impossible to prove by experts in genetics (3). Larsen (6) has shown a relationship between beliefs in the nature (rather than nurture) of intelligence on the one hand, and positive attitudes toward segregation on the other. A strong emphasis on the "nature" of human behavior lends itself readily to bigotry and to support of sterilization programs. The "nature" position is integral to fascist racial ideology. Hitler's (4) emphasis on the innate superiority of the Nordic peoples and the subsequent mass exterminations of "undesirables" and mandatory sterilization programs are logically and historically linked. One may therefore expect a relationship between attitudes toward fascism and mandatory sterilization of "undesirables."

B. The Development of a Likert Type Scale Measuring Attitudes Toward Mandatory Sterilization

With the use of Edwards' (2) *a priori* criteria 87 attitude scale statements were collected and edited from a variety of sources. These statements were administered to 150 undergraduate and graduate students at Oregon State University during winter term, 1974, with the use of the usual Likert response categories. The 15 *S*s who received the top total score on the 87 items were compared on each item with the 15 *S*s who received the lowest score. The internal consistency test yielded the following 36 items with the highest difference score between the two groups (The final scale consists of 17 positive and 19 negative items. The anti-sterilization items have asterisks behind the item number.): 1. Society has a right to sterilize those who are socially unfit. 2.* Forced sterilization of mental retardates is cruel. 3.* It is morally wrong to sterilize a person against his will. 4.* The mandatory sterilization of chronic welfare recipients is unjust. 5.* Society has no right to interfere with an individual's fertility no matter how socially unfit he may be. 6. Mandatory sterilization is merely the means to a beneficial end. 7. Retardates should not be allowed to have children. 8.* Mandatory sterilization of the socially unfit amounts to playing God. 9.* The concept of sterilizing sex offenders is ridiculous. 10. Parents who have produced a child with an inherited physical disease should be sterilized. 11.* Mandatory sterilization is too extreme a measure to take against the emotionally disturbed. 12. Society should be in favor of forced sterilization

of mentally retarded adults. 13.* Mandatory sterilization of a rapist is an overreaction to the crime. 14.* Sterilization should only be by mutual consent of doctor and patient. 15. Anyone convicted of murder should be sterilized. 16.* Sterilization of chronic welfare recipients is a violation of basic human rights. 17.* It is immoral to demand sterilization of rapists. 18. Persons who have serious birth defects should be mandatorily sterilized. 19. To let murderers breed and produce offspring is only asking for more trouble. 20. Mandatory sterilization should be required of people with inherited diseases to help society get rid of these diseases. 21.* If forced sterilization of the socially unfit is allowed, it can only lead to further infringements on the basic rights of people. 22.* Even individuals who are mentally retarded should have the right to reproduce. 23.* I do not believe in forced sterilization of the socially unfit. 24.* Chronic welfare recipients should have their own choice of whether or not to have children. 25.* Forced sterilization of rapists will not alleviate the problem, and should not be allowed. 26.* Mandatory sterilization cannot be justified on any grounds. 27.* Sterilization should be a matter of individual conscience. 28. For the good of future mankind, we must sterilize mental retardates. 29. Mental retardates should be required to be sterilized. 30.* Mandatory sterilization of socially undesirable people would be of no value to this society. 31. Mandatory sterilization of murderers is necessary to ensure a safer society. 32. Sterilization is one method by which society can rid itself of social misfits and this should be used. 33. Society must prevent the reproduction of mental retardates through mandatory sterilization. 34. Rendering the severely mentally ill sterile will benefit society as a whole. 35. Welfare mothers with two or more illegitimate children should be sterilized. 36. Society would be better off if sterilization were required of mental retardates.

C. Reliability and Validity of the Scale

The 36-item Mandatory Sterilization Scale, the Public Opinion Questionnaire (1) designed to measure fascist attitudes, and response categories for age, sex, and class in school were administered to a haphazard sample of 106 undergraduate students at Oregon State Univeristy, winter, 1974. The sample consisted of 58 males and 48 females. The mean age was 24.2 years and the mean class (where 1 = freshman and 4 = senior) was 3.7.

The split-half reliability coefficient was .92, and .96 when corrected by the Spearman-Brown Prophecy Formula. Neither age, sex identification, nor

class related to attitudes toward mandatory sterilization. However profascist attitudes as measured by the Public Opinion Questionnaire (1) correlated .39 ($N = 100, p. \leq .01$). These results suggest a relationship between attitudes toward fascism and sterilization. It may be hypothesized that these attitudes (sterilization and fascism) are logically related, since both are based on the assumed predominant importance of the "nature" of man's behavior. The emphasis on nature, *versus* the more plastic view that man's behavior is shaped or nurtured by the environment and is therefore malleable and capable of change, support rigid social policy expressed in various sterilization schemes and in a fascist outlook on life.

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VARIABLES IN INTERRACIAL AGGRESSION: EXPOSURE TO AGGRESSIVE INTERRACIAL INTERACTIONS*

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SUMMARY

An experiment employing 90 white male college students examined the influence of observing certain aggressive black-white interactions on subsequent interracial aggression. Before aggressing against a black target themselves, *S*s were exposed to a white person aggressing against a black person using high, low, or unspecified electric shocks, and to the black person counteraggressing using one of the same three response patterns. Prior to statistical analysis, two orthogonal variates were identified: direct aggression and indirect aggression. It was found that less direct aggression was delivered to a black target when *S*s witnessed a white person delivering low level shocks to a black than when *S*s witnessed unspecified white behavior. Except for a decrement in direct aggression produced when *S*s viewed unspecified shocking by a white and low shocking by a black, *S*s' aggression was not influenced by black counteraggression. Results are discussed in terms of the usefulness of observational experience in modifying interracial aggression.

A. INTRODUCTION

Results of an increasing number of studies indicate that black people are treated more punitively than white people in situations in which no information is available about an individual apart from his race. This pattern of results has been obtained in mixed-motive games (18), as well as in situations calling for altruistic, rewarding, and aggressive responses (4, 15). Of interest to the present authors have been the latter two forms of responding. For the past several years, we have explored means by which interracial punitive responses (i.e., minimally rewarding or highly aggressive

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responses) may be modified. Particular emphasis has been placed on the impact of variables such as threat of retaliation (7, 11), potential social censure (8), black-white attitudinal similarity (9), and vicarious censure of interracial aggression (10). The present experiment was an attempt to expand this inquiry by exploring another alternative which might serve to alter punitive responses toward blacks.

Specially, it was of interest to examine observational experience as a possible means for reducing white aggression toward black targets. Several experimental studies have found that observation of an individual behaving in a nonaggressive way toward a particular target produces large decrements in the level of aggression which is subsequently directed toward that target. Such decrements have been found following both observation of an individual who delivers low level rather than high level electric shocks (1, 2) and following observation of an individual who refuses to deliver electric shocks (13). Although these data are not based on interactions with black targets, there is little reason to expect a divergent pattern of responding where such targets are involved. Thus, it would appear that one way of reducing white aggression toward blacks may be based on observation of another white individual displaying nonaggressive interracial behavior.

In addition to white aggressive responses, counteraggressive responses by a black victim may also be useful in the control of interracial aggression. However, exactly what type of counteraggressive response will exert an aggression-reducing effect is not entirely apparent. Berkowitz (3) has suggested that individuals associated with aggressive events take on aggressive cue value. If the level of such cue value is assumed to vary directly with the intensity of associated aggression, observation of displays involving reduced black counteraggression should produce lower subsequent aggression than observation of displays in which such behavior is at a heightened level. Thus, use of minimal counteraggression on the part of a black victim would be expected to reduce the level of aggression subsequently used against himself, as well as against other blacks. On the other hand, it may be argued that use of high level counteraggression is a more effective means of reducing aggressive behavior. Observing such counteraggression may operate to control aggression either by evoking anticipation of such action for the *S*, should he choose to behave aggressively, or by acting as a vicarious punishment which conveys information indicating that aggressive behavior in the observed situation is inappropriate. In either case high counteraggression by a black victim would be

expected to increase inhibitions against aggressive responding and to reduce the level of such behavior which is displayed.

The present study explored the relative influence on aggressive behavior of white aggression and black counteraggression. It was of particular interest to determine whether different levels of counteraggression on the part of a black victim might influence subsequent aggression toward him. Thus, white college students were provided with an opportunity to aggress against a black target under conditions (subject-target anonymity, no role-switching) in which interracial aggression has previously been found to be at a relatively high level. Prior to aggressing, they were exposed to a white peer model interacting with the same black target. *S*s in one experimental group initially observed the white model displaying highly aggressive behavior, those in a second group observed him displaying nonaggressive behavior, and those in a third group did not view his specific responses. Further, to examine the possible influence of counteraggressive responses, *S*s in each of the foregoing groups subsequently viewed the black administering either aggressive, nonaggressive, or nonspecified counterresponses to the white.

It was hypothesized that lower levels of aggressive behavior would be exhibited toward a black target following observation of sequences showing nonaggressive behavior toward the target than following observation of sequences not displaying specific white behavior. A similar effect was expected after observation of high white aggression, with higher aggressive behavior being exhibited toward the black target following exposure to high white aggression than following exposure to nonspecific white behavior. Since the mechanism through which black counteraggression might have exerted its effect was unclear, no predictions were made concerning the influence of such responses on aggressive behavior.

B. Method

1. *Subjects*

*S*s were 90 white male introductory psychology students who volunteered to participate for extra course credit in 1971.

2. *Apparatus*

The apparatus consisted of a modified Buss (5) "aggression machine." The front panel contained 12 pushbutton switches numbered in consecutive

order. Depression of these switches illuminated corresponding lights on a control panel and activated a Hunter clockcounter. At the side of the machine was a single reward button. Sony recording equipment was used for preparing and presenting instructions, modeled aggressive interactions, and target test-list responses.

3. *Procedure*

a. General introduction The *S* was conducted to an experimental room, seated before a video monitor and recorder, and left alone to view a taped set of instructions. The instructions were presented by a male graduate student. It was explained that a series of experiments was being conducted to investigate the effects of reward and punishment on learning paired-associates (PA's). After reviewing the study-test method of PA learning, a brief summary of the research paradigm was given. To provide a context for the aggressive interaction which the *S* would view subsequently, procedures ostensibly used in previous experimental sessions were described first. It was indicated that because numerous physiological and behavioral indices had to be recorded, two students were involved in all previous sessions. One student learned a PA list, while the other served as the *E*'s assistant, administering reward for correct responses and punishment for incorrect responses. Then the students switched roles. That is, the learner assumed the role of assistant and delivered reinforcements, while the assistant assumed the role of learner and began learning a new task.

It was further indicated that in the present experimental session, an analogous procedure was to be followed, except that no role-switching would take place. The *S* was led to believe that he would be serving as the *E*'s assistant, determining whether the learner made a correct or incorrect response and delivering the appropriate reinforcement, either reward or punishment. Reward was to consist of illuminating a light on the control board in front of the learner, and punishment of administering electric shock. It was further indicated that the learner was an individual who had participated in previous experimental sessions and who was presently in another room preparing for his task. Care was taken to emphasize the fact that, in contrast with previous sessions, only one task was of interest to the *E* and that the *S* thus would not be asked to switch roles with the learner.

b. Exposure to aggressive interactions Under the guise of clarifying the *S*'s task, one of nine video-tapes which ostensibly depicted two students participating in a prior experimental session then was shown. Each tape

first portrayed a white male college student administering reinforcements to a black male peer engaged in PA learning. The white was shown administering four shocks using the 12-button "aggression machine" and one light using the single button reward apparatus during each of six blocks of five responses each, a total of 24 shocks being administered. Each tape then portrayed the situation after role-switching; that is, it showed the white student learning while the black administered reinforcement. The sequence of shocks and lights delivered by the black was identical to that previously used by the white, four shocks and one light being delivered in each of six blocks of five responses each. All *S*s were led to believe that the black student was the individual to whom they themselves would deliver reinforcements. For one third of the *S*s the level of shock used initially by the white was shown to be low (response buttons 3, 4, 5), for one third it was shown to be high (response buttons 8, 9, and 10), and for one third it was not specifically shown. Then, for one third of the *S*s in each of the above groups, the intensity of shock subsequently delivered by the black was either high, low, or not shown. In all cases depicting specific responding levels, each of the three designated buttons was depressed by the model an equal number of times. In cases where the level of delivered shock intensity was not specifically shown, the camera was positioned to make apparent the fact that shocks were being delivered but to obscure the exact intensities involved.

After viewing the modeling stimuli, the *S* was assured of his anonymity with respect to the target. He was told that other research had shown that a person behaves somewhat differently depending upon the individual reinforcing him and that since the learner might participate in additional sessions, the identity of the assistant was not to be disclosed either during or after the experiment.

c. Administration of aggression. The *S* was then taken to an adjoining room in which the aggression apparatus was located. It was explained that when the learner made an incorrect response, the *S* was to deliver any one of 12 different intensities of shock and that when the learner made a correct response, he was to push the reward button which illuminated a bulb on the panel in front of the learner. The *S* was then handed a list of 48 CVC nonsense syllables of medium m′-value (14) which presumably respresented the order of correct responses on the test list. Following an explanation of this list, the *E* left the room and played an audio tape of the learner attempting to recall the correct PAs. The tape was constructed so that there

were three blocks of 16 trials each with six correct responses and 10 incorrect responses (intralist intrusions) randomly distributed in each block, a total of 30 shocks being recorded for each *S*.

The final design reflected a 3 × 3 factorial, with Black Aggression and White Aggression treated as factors. There were 10 *S*s in each of the nine independent cells. Postexperimental interviews and questionnaires did not reveal any suspicion on the part of *S*s.

C. Results

The three dependent measures were mean shock intensity, mean shock duration, and sum of high shock intensities (response buttons 8, 9, 10, 11, and 12). Since a multivariate response system was of primary interest, the correlation matrix of the data was first subjected to a principal components analysis. This analysis indicated that 97% of the variance was accounted for by the first two components, and only they were subjected to further analyses.

Principal components one and two are presented in Table 1 and are analogous to those obtained in other studies (6, 7, 8, 9, 10). As can be seen, the first principal component is dominated by intensity-related measures. Since differences in intensity are associated with easily discriminable buttons which ostensibly produce differentiable shocks, it seems reasonable to characterize this component as a measure of *direct aggression*. Approximately 64% of the total variance of the original three responses is accounted for by this component. The second principal component represents an alternative measure of aggression, duration contributing heavily to this factor. Since differences in shock duration tend to be less discriminable by *S*s than differences in intensity (16), this component probably reflects a type of aggression which is subject to minimal cognitive mediation (17) and is more subtle or indirect than that measured by the first component. It accounts for approximately 33% of the total variance and may be labeled *indirect aggression*.

TABLE 1
Coefficients and Variances of the First Two Principal Components

Measure	Component 1	Component 2
Mean shock	.7069	.0219
Mean duration	−.0152	.9998
Sum high shock	.7071	−.0004
% total variance	64%	33%

Univariate analyses of variance with White Aggression and Black Aggression treated as factors were performed on the first two principal component variates. The analysis on the first principal component, direct aggression, yielded significant effects for White Aggression, $F(2, 81) = 15.84$, $p < .001$, Black Aggression, $F(2, 81) = 6.32$, $p < .005$, and White Aggression × Black Aggression, $F(4, 81) = 3.03$, $p < .025$. The interaction is presented in Figure 1. Regardless of black aggression, *S*s viewing a white model using high shocks displayed relatively high direct aggression. Similarly, regardless of black aggression, *S*s viewing a white model using low shocks displayed relatively low direct aggression. *S*s' aggression was influenced by black aggressiveness only when nonspecific white shocking behavior was observed. Under this condition, *S*s delivered relatively low direct aggression when they viewed a black using low shocks and relatively high direct aggression when they viewed a black using high shocks or nonspecific shocks. With respect to the control of aggression, it may be noted that *S*s in the three groups viewing low white shock delivered reliably lower direct aggression than *S*s exposed to nonspecific black and white shocking behavior. *S*s viewing low black shock and nonspecific white shock showed a comparable decrease. The level of direct aggression used by all other groups did not differ from that used under nonspecific shock conditions. The analysis of the second component, indirect aggression, did not reveal any significant sources of variance.

In further analyses, the direct aggression component was evaluated for modeled behavior, yielding scores of 6.3 and 1.7 for models using high shock and low shock, respectively. In this evaluation the contribution of duration was ignored, since its associated coefficient (−.0152) was very small. Comparisons of observed and exhibited aggression indicated that *S*s consistently used different levels of direct aggression than did models of either race. Exhibited direct aggression for all groups was reliably lower than that used by models showing high shocking behavior and reliably higher than that used by models showing low shocking behavior.

D. Discussion

The present results are clearly consistent with the notion that exposure to nonaggressive white behavior may operate to modify subsequent direct aggression toward blacks. *S*s who witnessed a white peer delivering low level shocks to a black target showed less direct aggression toward the same target than *S*s having nonspecific observational experience. Given

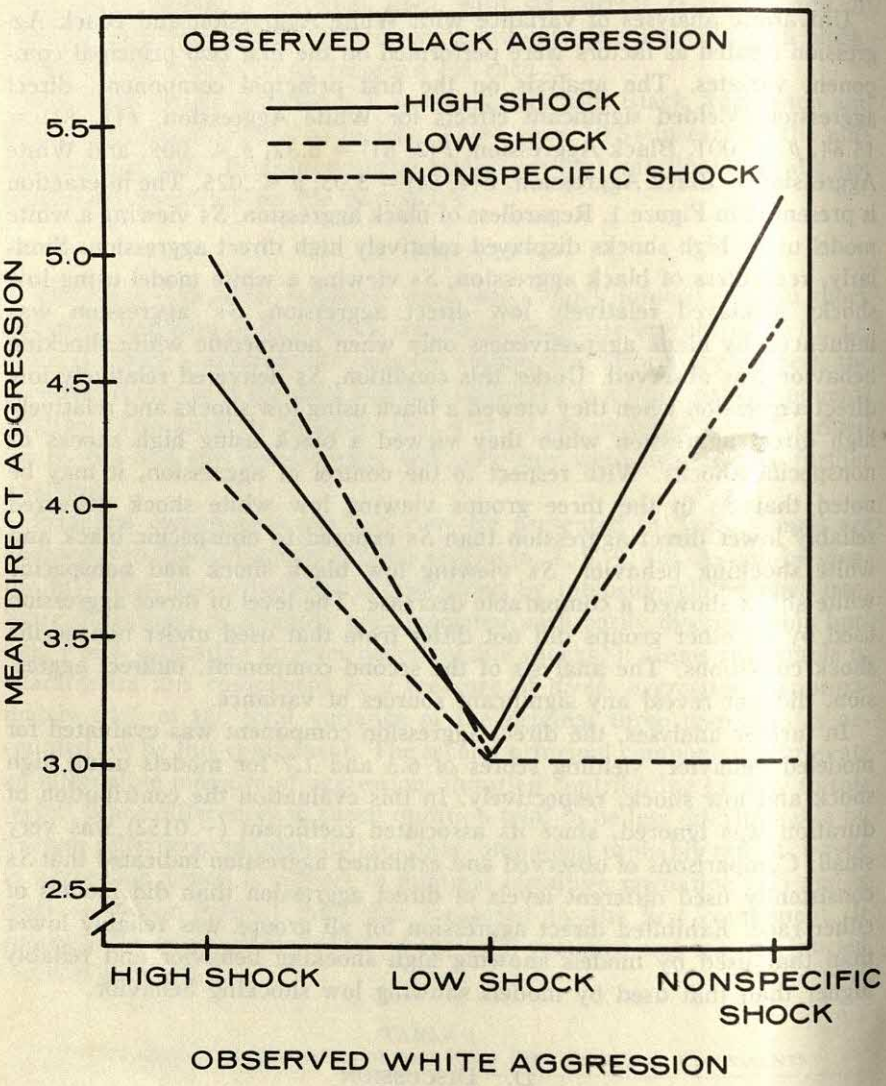

FIGURE 1
MEAN DIRECT AGGRESSION AS A FUNCTION OF OBSERVED WHITE AGGRESSION AND OBSERVED BLACK AGGRESSION

that conditions of the present experiment (i.e., anonymity and no role-switching) have been found to produce heightened aggression toward blacks (10, 11), this finding suggests that observational experience may be a powerful tool in the control of interracial aggression.

The present data also give some indication of the mechanism through which observational experience influences direct aggressive behavior. Although observation of nonaggressive white behavior (i.e., low shocks) produced relatively low direct aggression, such responding was not reduced to the level displayed by the nonaggressive white model. Results showed that *S*s in all experimental groups used significantly higher levels of direct aggression than the nonaggressive white model. This finding clearly suggests that observational experience does not exert its effect by providing *S*s with modeled responses which they routinely mimic. Rather, it appears that the influence exerted by such experience combines with already established behavioral dispositions to produce a composite influence on directly aggressive behavior. Thus, in the present case observation of nonaggressive white behavior probably operated in conjunction with highly aggressive dispositions to produce a level of direct aggression which was between that displayed by *S*s having no specific observational experience and that displayed by the nonaggressive model.

Whereas observation of nonaggressive behavior reduced subsequent direct aggression, observation of highly aggressive behavior did not produce higher levels of direct aggression than would have been expected had no specific aggressive behavior been observed. One explanation of this finding may be found in the degree of disparity between the level of aggression which *S*s observed and that which they were predisposed to display. Nonaggressive models were shown using a relatively low level of direct aggression (1.7) compared to that which *S*s were predisposed to display ($\overline{X}$ = 4.75 for the group viewing nonspecific white aggression and nonspecific black aggression), while aggressive models were shown using a level of direct aggression (6.3) which was more comparable to this predisposed level. Thus, to the extent that aggressive behavior is determined by the combination of influences arising from observed behavior and predispositions, a smaller modification in direct aggression might be expected in the latter case than in the former case.

Also of interest is the fact that the level of direct aggression used by *S*s viewing both the responses of a white and the counterresponses of a black did not vary systematically with black behavior. Thus, except for the decrement in direct aggression produced by a lone black showing low aggression, *S*s' aggressive responding was not influenced by black counteraggression. One possible explanation of this finding may be based on differential susceptibility to influence by white as contrasted with black individuals. Thus, consistent with other research showing heightened effectiveness of similar individuals (12) greater modifications in responding may

have been induced by a person having the same racial identity as the *S*. Another possibility is that modeling stimuli presented initially are more effective in influencing behavior than are those presented at later points in time. Some support for this conjecture comes from a recent study by Baron (1) in which *S*s who viewed a nonaggressive model followed by a highly aggressive model delivered lower shocks than *S*s who viewed the same models in opposite order. In agreement with present results, this study found that aggression delivered under the former condition was comparable to that delivered by *S*s viewing a single nonaggressive model.

Taken together, the present results indicate that while observation of nonaggressive white behavior toward a black target may reduce direct interracial aggression, black counteraggression exerts a negligible effect on such behavior. Thus, it would appear that in situations where white aggression is used initially against a black target, a target's counterresponse may have little influence on the way he is treated subsequently. However, the fact that reduced direct aggression was evidenced when low black counteraggressive responses were observed in the absence of white aggression suggests that in other situations where white responses are not available, black aggression may exert an important influence on white behavior.

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DEFERRED GRATIFICATION AND SOCIAL CLASS*[1]

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SUMMARY

The hypothesis of this study is that choice of immediate reward may be explained by variables other than impulse control. *S*s were boys, 13 to 16 years old, stratified by social class and racial category. Questionnaire measures were taken of generalized attitudes on subjective power, optimism, delay, and risk-taking. After experimental manipulation of task comprehension, boys made choices between specific prizes under different conditions of delay and/or task performance. Boys trained on task principles chose the larger reward significantly more often than those not trained. Middle-class boys reported more favorable attitudes toward risk-taking and were more likely than lower-class boys to choose the immediate reward. Blacks reported less favorable attitudes toward risk-taking and were more likely to attribute control to external sources than were whites. High scores on optimism and risk-taking were associated with choice of larger reward. It was concluded that differences in preference for immediate reward are not a simple function of impulse control.

A. INTRODUCTION

The deferred-gratification construct, defined as "the subordination of present hedonistic satisfactions and immediate impulse to the pursuit of long-range goals" (5), has been widely accepted as an established class-linked variable (7), despite the fact that there is no unambiguous evidence to support the hypothesis of class differences in the learning of a *generalized* tolerance for delayed gratification. Tolerance for delay does not even appear to be a unidimensional personality characteristic, yielding

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consistent results on different measures for the same individual (12). The construct has nevertheless been regularly used as a blanket explanatory concept for many of the differential behavioral characteristics of the lower and middle classes (e.g., prevalence of juvenile delinquency, illegitimacy, school dropouts, career choice, savings patterns, social mobility, and family planning).

Whether lower-class individuals are indeed less willing or less able to control impulses can be answered empirically, although existing data are not adequate for such a determination. Quite apart from the issue of class differences, however, are questions about the effects of different experiences on a complex of other variables, each of which might tend to make delay more aversive for lower than for middle-class individuals. Thirteen variables, none of which has been demonstrated to be unidimensional, appear to be confounded in the construct:

1. *Tolerance for delayed gratification* (or impulse control).

2. *Risk-taking.* Attitudes toward risk-taking may be positive for one group and negative for the other. The kinds of risk which will be undertaken may also differ (e.g., material *vs.* intangible objects).

3. *Power.* Subjective evaluation of having personal control or external control of his outcomes may be reflected in a fatalistic or an active, coping orientation.

4. *Optimism or pessimism.* A fatalist may feel generally lucky or unlucky, while a nonfatalist may feel generally competent or incompetent (4).

5. *Relative attractiveness of alternative rewards.* Social classes may differ in preferences for types of reward, apart from the delay factor (17).

6. *Relative time-boundness of alternative rewards.* Certain objects are age-graded or otherwise time-bound so that they are neither useful nor appropriate later.

7. *Salience.* Habit may differentially affect salience of the alternative rewards (1). Lower-class children are likely to have had more experience with the types of reward generally used in the immediate situation than with long-range rewards. Salience may also be affected by differences in the level of reality of the choice. Lower-class children may not perceive the long-range goal as a realistic possibility.

8. *Comprehension of means-end linkage* (or pathways to goal). Lower-class children are less likely to know what behavior is relevant to long-range goal attainment.

9. *Contingent rewards.* Social approval for behavior leading to long-range goals, as well as intrinsic gratification, are likely to differ by class.

10. *Relative deprivation or satiation of needs.* The types of reward offered without delay (candy, money, and other material objects) are more likely to be related to unmet needs in lower-class individuals.

11. *Perception of temporal distance between alternative rewards.* Middle-class children are likely to have had more experience with extended time schedules (3).

12. *Ability to deal with abstract concepts.* Middle-class children are better able to cope with abstractions, such as are usually involved in long-range rewards.

13. *Self-reliance.* Fending for oneself at a very early age is more prevalent among lower-class children. A major component is lack of trust in others, resulting from repeated experiences with the default of adult figures.

This study was designed to test the hypothesis that choice of immediate reward may be explained by variables other than impulse control. Two types of specific predictions were made: those referring to expected social-class differences in attitudes, and those referring to expected differences as a result of experimental treatment and differences in initial attitudes.

B. Method

*S*s were told that the study was concerned with predicting occupational success. The entire procedure was completed in a single session with each group of *S*s.

There were three sets of independent variables: (*a*) group variables—social class, race, and treatment; (*b*) scores on four attitude scales; and (*c*) scores on four task-evaluation scales. The three dependent variables were scores in the different choice conditions.

1. *Subjects*

*S*s were 450 boys in the upper 8th or lower 9th grade of public schools in the Northeast, aged 13 through 16. Communities were selected on the basis of median levels of income, education, unemployment rates, and any other available socioeconomic data. Fourteen *S*s were eliminated from the analysis because SES was not clear, and seven others were dropped because they had not completed all parts of the study, making a total *N* of 429. Of these, 109 were middle-class whites, 87 middle-class blacks, 100 lower-class whites, and 133 lower-class blacks. Two or more classes from eight schools were used. In each school, half of the classes were randomly assigned to Treatment A or Treatment B.

2. *Procedure*[3]

The initial questionnaire consisted of 48 pairs of forced-choice alternatives, forming four scales:

a. Internal-External Control. Twenty-one items were adapted from the Rotter Scale (15). Scores could range from 0-21 in the direction of greater internalization.

b. Optimism/pessimism. Nine items developed for this study were included, with scores having a possible range of 0-9 in the direction of greater optimism. A sample item is (A) When there's any doubt left after you have done your best, you usually find that things don't work out too well. (B) When there's any doubt left after you have done your best, you usually find that things work out pretty well.

c. Delay. Scores could range from 0-9 in the direction of accepting delay. One of the nine items developed for this scale is (A) Anything worth having usually takes a long time to get. (B) Anything that takes a long time to get is usually not worth it when you do get it.

d. Risk-taking. Scores could range from 0-9 in the direction of accepting risk. One of the nine items developed for this scale is (A) Sticking to sure things is the best way to get ahead. (B) You don't get anywhere by playing it safe.

The experimental task consisted of a series of geometric-figure puzzles adapted from Katona (8). In this study, all of the figures were composed of five blocks which were to be reduced to four-block figures. Each *S* was given 16 plastic toothpicks. Although a less time-consuming paper-and-pencil method can be used, these were chosen to minimize possible differences in attitudes toward the task on the part of lower- and middle-class *S*s. In addition, lower-class *S*s would be expected to be at less of a disadvantage in working with concrete materials than abstract lines. *S*s were told that people who succeed in certain occupations, such as engineering, architecture, mechanics, and accounting, do especially well on these puzzles. After *S*s had attempted to solve two puzzles, they were asked to lay the picks aside temporarily.

To determine whether lower- and middle-class *S*s differed in attitudes toward the task, *S*s were given four seven-point evaluation scales. These horizontal scales were numbered and labeled at each interval. The *E* explained how they were to be marked and then demonstrated on the blackboard. The first scale, measuring *difficulty,* read: How hard do you

[3] For complete instruments and details on their development, see Levy (10).

think it is to learn to do these puzzles? 0) Very easy, 1) Easy, 2) A bit easy, 3) Neither easy nor hard, 4) A bit hard, 5) Hard, 6) Very hard. The second scale measured *interest,* the third *importance,* and the fourth *motivation.*

Manipulation of comprehension of the task was accomplished by giving *S*s in Treatment A only explicit instructions on the general principles for solving the geometric-figure puzzles, both verbally and by blackboard demonstration.

In order to equalize the time spent considering the puzzles by *S*s in the two treatments, *S*s in Treatment B were given one additional puzzle to work on, using the same procedure as with the puzzles presented earlier.

All *S*s were then given the postquestionnaire, which contained nine items, each consisting of a pair of forced-choice alternatives. The choices were 25 ¢ *vs.* $1.00, one ballpoint pen *vs.* three ballpoint pens, and one 45-RPM record *vs.* two 45-RPM records.

In the first condition, the only contingency was a two-week delay before receipt of the more valuable reward. A sample item is (A) One popular 45 RPM record today. (B) Two popular 45 RPM records in two weeks.

In the second condition, successful completion of a task was required to obtain the more valuable reward: (A) $1.00 today if I pass the test. (B) 25 ¢ today, regardless of whether I pass or fail the test.

In the third condition, obtaining the more valuable reward was contingent on both delay and successful completion of the task: (A) Three ballpoint pens in two weeks if I pass the test. (B) One ballpoint pen today regardless of whether I pass or fail the test.

The cover sheet of the final questionnaire explained the three types of choices to be made. It also stated that, in the choices involving a test, *S*s would have to solve some puzzles like the ones they had worked on earlier, but involving new designs. Instructions were as follows: There are nine questions in this booklet. Only one of the questions counts as your real choice, but I can't tell you which one that is until you have finished all of the questions in the booklet. Choose carefully, because you will actually get one of the prizes you pick—either today or in two weeks, depending on how you choose.

The rewards were all displayed before the *S*s filled out the questionnaire, and records were changed weekly to the current hit titles.

The postquestionnaire was scored by summating the number of alternative (more valuable) choices under each of the three conditions. Scores could range from 0-3 for each condition, with high scores indicating greater preference for the more valuable reward.

Immediate rewards were distributed to the *S*s who had chosen 25 ¢ in the delay condition. Those who had chosen the delayed reward in that condition were given the name of the school staff member who would give them $1.00 in two weeks.

Finally, the *S*s were given complete explanations of the purpose of the experiment, except that social-class differences were not mentioned.

3. *Data Analysis*

Stepwise multiple-regression analysis was used to simulate analysis of variance because of the complexity of the design and the fact that all cells did not have equal numbers of *S*s (6). The statistical technique consisted of separate four-stage analyses of the data for each of the three dependent variables.

In the first stage of each analysis, the five individual *S* variables were permitted to enter the equation in sequence, beginning with the one with the highest *F* value. The variables in the first subset were those which were not directly controlled by *S* selection.

In the second stage, the three group variables entered the equation. These dichotomous variables were scored as follows: Racial Category (white, 1; black, 0); Social Class (middle, 1; lower, 0); Treatment (A, 1; B, 0).

In the third stage, the four variables included to check on the relative effectiveness of the manipulation entered the equation.

Finally, the three interaction terms entered as the fourth subset of independent variables. These terms were the cross products of the nominally coded group variables: Social Class by Racial Category, Social Class by Treatment, and Racial Category by Treatment. Thus, for example, a middle-class white was coded 1, and a middle-class black was coded 0 in the interaction terms.

C. Results

The means and standard deviations for each of the variables are shown in Table 1. Table 2 contains the zero-order correlation matrix. The significance of a raw correlation is equal to the significance of a *t* test, and the significance of the contribution of an independent variable to the multiple-regression equation is equivalent to the significance of the proportion of the variance in the dependent variable that is accounted for by that independent variable, above that which is accounted for by the previously inserted variables.

TABLE 1
MEANS AND STANDARD DEVIATIONS OF VARIABLES

Variable	Mean	*SD*
Age	14.22	.74
Racial category	.49	.50
Social class	.46	.50
Treatment	.51	.50
Risk-taking	4.30	2.00
Delay	5.91	1.89
Optimism-pessimism	6.11	1.99
Internal-external	12.50	3.02
Difficulty	2.55	1.50
Interest	3.55	1.72
Importance	3.12	1.68
Motivation	3.64	1.67
Racial category by treatment interaction	.24	.43
Social class by treatment interaction	.23	.42
Racial category by social class interaction	.28	.52
Delay condition	2.26	.98
Task performance condition	2.05	1.12
Delay plus task performance condition	2.27	.98

1. *Relationship of Social Class and Racial Category to Generalized Attitudes*[4]

a. Internal-External Control. Contrary to prediction, lower-class boys did not have significantly lower scores than middle-class boys. Racial Category, however, was associated with Internal-External score ($p < .01$); blacks were more likely than whites to attribute control to external sources. There was no significant interaction between Social Class and Racial Category on this scale.[5]

b. Optimism-Pessimism. Neither Social Class nor Racial Category was significantly related to this scale.

c. Delay. As predicted, social classes did not differ significantly on this scale. Racial Category was also not significantly related to Delay score.

d. Risk-Taking. Contrary to expectations, this score was not a function of the relationship between the Internal-External score and the Optimism-Pessimism score. Neither was significantly associated with Risk-Taking. Risk-Taking score was related ($p < .01$) to both Social Class and Racial Category. Lower-class boys and blacks were less likely to have favorable attitudes toward risk-taking. There was no interaction between Social Class and Racial Category on Risk-Taking score.

[4] These relationships were tested by determining the significance of the r_{pb} between the dichotomous class or race variable and score on the attitude scales.
[5] All probability levels are based on two-tailed tests and 400 *df*.

TABLE 2
ZERO-ORDER CORRELATION MATRIX

Variable	1	2	3	4	5	6	7
1. Age	1.00	.04	−.21**	.12*	−.01	−.19**	−.13**
2. Racial category		1.00	.11*	−.01	.24**	−.01	−.10*
3. Social class			1.00	−.01	.14**	.05	−.01
4. Treatment				1.00	.06	−.03	.02
5. Risk-taking					1.00	−.01	−.02
6. Delay						1.00	.26**
7. Optimism-pessimism							1.00
8. Internal-external							
9. Task difficulty							
10. Task interest							
11. Task importance							
12. Task motivation							
13. Race X treatment							
14. Social class X treatment							
15. Race X social class							
16. Delay condition							
17. Task condition							
18. Delay + task condition							

* $p < .05$.
** $p < .01$.

2. *Relationship of Independent Variables to Dependent Variables*

a. Delay condition. Contrary to the hypothetical framework of this study, the relationship between Social Class and score in this condition was significant beyond the .001 level. Since the validity coefficient was *negative*, however, lower-class boys were *more* likely than middle-class boys to choose the delayed reward, contradicting the deferred-gratification hypothesis. It was expected that boys in Treatment A would have higher scores in the Delay condition than boys in Treatment B, but the difference did not reach a significant level. The prediction that boys who scored low on the Optimism-Pessimism Scale would be less likely to accept delay contingencies than boys with high scores was confirmed at the .005 level. Contrary to prediction, score on the Internal-External Scale was not related to score in the Delay condition. The interaction between Social Class and Treatment was significantly associated with score in the Delay condition ($p < .001$), since the Treatment had a larger effect for lower than for middle-class boys. Score on the Risk-Taking Scale was positively associated with score in the Delay condition, although the correlation did not reach an acceptable significance level ($p < .10$).

b. Task-Performance Condition. The prediction that Treatment would have a greater effect than Social Class in this condition was confirmed. The

TABLE 2 (*Continued*)
ZERO-ORDER CORRELATION MATRIX

8	9	10	11	12	13	14	15	16	17	18
−.06	.02	−.10*	−.07	−.15**	.11*	−.06	−.03	−.01	−.08	−.06
.14**	.06	−.03	−.18**	−.12*	.58**	.06	.54**	.04	−.01	.05
−.10*	.00	.03	−.08	.03	.07	.58**	.48**	−.14**	.01	−.06
.04	.04	.08	.01	.03	.56**	.54**	−.01	.06	.13**	.08
−.09	−.02	−.05	−.12*	.00	.15**	.13**	.16**	.07	.07	.09
.33**	.09	.15**	.10*	.17**	−.07	−.04	.02	.10*	.04	.08
.31**	.03	.12*	.11*	.15**	−.02	−.02	.03	.14**	.12*	.14**
1.00	.02	.14**	.04	.14**	.07	.01	.09	.02	.04	.06
	1.00	.24**	.13**	.13**	.02	−.02	−.06	−.09	−.10	−.01
		1.00	.39**	.72**	−.02	.08	.00	.07	.01	.15
			1.00	.45**	−.12**	−.01	−.15**	.04	.03	.10*
				1.00	−.09	.06	−.08	.07	.01	.13**
					1.00	.38**	.26**	.05	.08	.02
						1.00	.28**	−.11*	.01	−.02
							1.00	.01	−.01	.02
								1.00	.16**	.56**
									1.00	.23**
										1.00

difference between Social Classes was not significant, while the difference between Treatments was significant at the .001 level. Treatment A boys, as expected, were more likely than Treatment B boys to choose the alternative reward in this condition. The prediction that boys who scored low on the Optimism-Pessimism Scale would be less likely than high scorers to choose the alternative reward in this condition was confirmed ($p < .025$). Contrary to expectation, score in the Internal-External Scale was not related to score in the Task-performance condition. The interaction between Social Class and Treatment was associated with score in the Task-performance condition ($p < .001$), as a result of the Treatment's having a larger effect for lower than for middle-class boys. Score on the Risk-Taking Scale was positively associated with score in this condition, but only at the .10 level.

c. Delay-plus-Task-Performance Condition. The expectation that Treatment effect would be greater than Social-Class effect was not confirmed. While the difference between Treatments was significant at the .025 level, the Social-Class difference was significant at the .005 level. For comparable degrees of freedom, these levels may be taken as indicators of the magnitude of relationship. The direction of the difference is the same as in the first condition (delay), where lower-class boys were more likely than middle-class boys to choose the alternative reward. (Note that measures of each of the dependent variables are obtained independently of one another.) As expected, boys in Treatment A were more likely than those in

Treatment B to choose the alternative reward in this condition ($p < .025$). *S*s who scored low on the Optimism-Pessimism Scale were, as predicted, less likely than high scorers to choose the alternative reward ($p < .01$). Contrary to prediction, scores on Internal-External Scale were not significantly related to scores in this condition. High scorers on Risk-Taking were more likely to choose the alternative reward, as predicted ($p < .025$).

3. *Task Evaluation Scales*

a. Relationship to Social Class, racial category, and treatment. Neither Social Class nor Treatment was related to ratings of the task on any of the four scales. Racial Category, however, was associated with ratings on two of the scales. Black boys were more likely than whites to rate the task as important and to report a higher degree of motivation to learn more puzzles ($p < .01$).

b. Relationship to dependent variables. Ratings on the Difficulty Scale were inversely related to Delay Condition score ($p < .001$), and ratings on the Interest Scale were directly related to Delay Condition score ($p < .005$). Difficulty Scale ratings were inversely related to Task-Performance Condition score ($p < .001$). Ratings on the Interest Scale were directly related to Delay-Plus-Task-Performance Condition score ($p < .001$). Since these two scales (Difficulty and Interest) were not related to the independent group variables (Social Class, Racial Category, or Treatment), it appears that systematic group differences in attitudes toward the task were not confounded in treatment effects.

D. Discussion

The results support the hypothetical framework of this study, which states that social-class differences in preference for immediate reward are not necessarily a simple function of impulse control. Where such differences were found, they were in a direction opposite to that which would be predicted by the deferred-gratification hypothesis. Thus, no significant differences were found between lower and middle-class *S*s on generalized attitudes toward delayed rewards. When, however, actual choices were made between specific rewards, middle-class boys were significantly more likely to select the immediate reward.

The fact that Racial Category was not significantly related to any of the dependent variables is consistent with the hypothetical framework of this study, since the arguments against class-linked differences in tolerance for deferred gratification apply equally well against race-linked differences.

The differences found between social classes and between blacks and whites are also consistent with the basic hypothesis of this study, and with findings in need for achievement studies (2).

Apparently the treatment effect was not strong enough to outweigh other variables influencing choices in the first condition, involving delay only. Mischel and Staub (13) had found, for *S*s with generalized failure orientations, a significant difference between *S*s in the success and failure treatments.

The deferred-gratification literature generally refers only to "lower-class" and "middle-class" individuals, without rigorously defining categories. Yet, most investigators recognize important differences within these categories (9, 11). It was not feasible in this study to make a further breakdown of social classes.

There may be significant differences in generalized attitudes between the extremes of the two classes which were obscured by, for example, a similarity of attitudes among boys from blue-collar and white-collar families.

It is also possible that there are differences between strata *within* the lower class. The "disorganized" or "asocialized" lower class may differ from all other strata in crucial psychological characteristics. If this is so, and, if this lowest stratum was underrepresented or even excluded from the present study, then, of course, it would explain the failure to find a difference between classes in attitudes toward delay.

There are two separate issues. First, the view that there is one segment of the population which differs in crucial psychological characteristics is a controversial one, since the specific relationships between overt behavioral differences and basic personality variables have not been established. For example, lower-class children tend to show higher motility levels in certain social situations, such as classrooms. It may be that these salient differences in motility have lent credence to the belief in basic differences in impulse control. Also, if there is a small segment of the lower class which engages in uninhibited behavior, its high visibility may lead to the impression that the behavior is characteristic of the entire lower class.

Secondly, the literature on the deferred-gratification pattern does not state that the construct applies only to one segment of the lower class. One of the most influential studies used high-school students of similar socioeconomic statuses to the boys in the present study (16).

There is also a serious problem in matching blacks and whites by social class, making interpretation of racial differences hazardous. In this study,

it was apparent that the social-class status of blacks and whites was not comparable despite matching on the same criteria. For example lower-class blacks, to a far greater extent than lower-class whites, came from families in which the father was absent and/or families which were receiving welfare assistance. Since social class and racial category are confounded in our society, it is believed that the differences found between blacks and whites in this study result from socioeconomic factors rather than racial factors.

Finally, these findings imply that the whole concept of impulse control as a personality variable in its wider application in clinical areas may be questionable. Some of the more recent work by social learning theorists has begun to clarify some of the ambiguities in the construct (14).

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ATTITUDE SCALES AS BEHAVIOR ESTIMATION DEVICES: SCALE SPECIFICITY AND PREDICTION ACCURACY*

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SUMMARY

It was hypothesized that an attitude scale specifically tailored to predict a behavioral criterion would be more highly correlated with that criterion than a scale not so constructed. *S*s were 38 male and 28 female sociology undergraduate students tested in the fall, 1972. Two six-item Thurstone, equal appearing intervals scales were used to measure *S*s' attitudes with respect to cheating. The special scale was more closely correlated with behavior ($r = .34, p < .01$) than was the general scale ($r = .09$, NS). It was concluded that the tailoring procedures, based on a social learning theory conception of attitude, produced a scale which afforded more efficient estimates of behavior than conventional scales not so tailored. Implications of the findings for attitude research are discussed.

A. INTRODUCTION

For decades social psychologists have investigated the extent to which attitude scales correlate with human behavior (1, 2, 5, 7). The issue underlying this continuing concern was originally raised by behavior theorists (3, 4, 8), who reasoned that *if* attitude scales truly operationalize attitude and *if* (as the definitions claim) attitudes shape behavior, *then* attitude scale scores should be accurate predictions of motor behavior. This claim spawned what may be described as two traditions in attitude-behavior research. One tradition focused on measuring attitudes (using a multitude of methods) and checking these assessments against behavior. This tradition has generated a tremendous volume of contradictory and inconclusive research reports and is credited with initiating and maintaining what has come to be called the "attitude-action controversy" (8, 12). Research in the second tradition, executed largely by psychometricians, has addressed itself

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to the technical aspects of scale construction and examined the differential predicitve efficacy of scales (6, 10).

It is within this former tradition, wrought with disagreement about the interpretation of evidence, that attention should focus on the rules of correspondence or epistemic correlation between the concept attitude and the operations which culminate in a scale. Yet, it is at this juncture of concept with operation that our research is most sparce. Although some scholars have suggested that conceptual ambiguity is a major source of error variance in attitude-behavior studies, contemporary researchers continue to focus their energies on exploring the intervening variables argument (8, 11). The purpose of the present paper is to assess one aspect of the behavior theorist's argument relating to the question of rules of correspondence scales and the impact of this relationship on the correlation between attitude scale scores and behavior. That is, can the accuracy of predictions be enhanced by more carefully specifying the definition of attitude and consequently refining the quality of the scales?

One of the first social psychologists to elaborate the inconsistencies and ambiguities surrounding definitions of attitude was Leonard Doob (3, 4, 5). Approaching the problem from the standpoint of Hullian Learning Theory, Doob suggests that to improve attitude as a scientific concept and to assess accurately any relationship between attitudes and behavior, one should (*a*) clearly specify what an attitude is and where it came from, and (*b*) choose a target behavior which is specific and which lies within the appropriate universe of content.

In an effort to examine Doob's argument systematically, several assumptions for the research must be made explicit. In terms of a social learning theory framework, attitude is treated as a learned tendency to respond to an object, where the nature of the response is a function of the individual's reinforcement history (3, 7, 8, 9). In satisfying Doob's first point, then, the definition tells us that attitude is a propensity to act and that the etiology of the act is to be found by examining differentials in the individual's history of reinforcement. This is to be contrasted with the cognitive approach which defines attitude in more general terms as a predisposition arising as a consequence of a particular cognitive configuration composed of many elements.

The test of Doob's reasoning lies in the extent to which a scale based on the specific, social learning theory definition is more closely correlated with an appropriate behavior than a scale based on a conventional definition (which presumably suffers from the ambiguities outlined by Doob). The

remainder of the present paper reports an experiment designed to assess the presence and extent of any of the above hypothesized differential accuracy in predictions.

B. Method

1. *Subjects and Scales*

Ss were 38 male and 28 female sociology undergraduate students who were given a questionnaire containing general background questions and items for constructing two six-item Thurstone, Equal Appearing Intervals attitude scales (6). All items for each scale, including several camouflage items, appeared in a randomized order on the questionnaire.

The items composing one scale were prepared in keeping with the aforementioned conventional definition of attitude as a general, cognitive predisposition. They were drawn from a universe of content focusing on attitudes toward cheating in school, and were selected, following Edwards (6), on the basis of the extent to which each item tapped the *S*'s general orientation toward cheating. They reflected abstract "conventional wisdom" remarks and, in terms of content, addressed a range of issues involved in the problem of cheating. For example, statements to which *Ss* were asked to respond include: (*a*) "People tend to exaggerate the harm that cheating causes," (*b*) "Everyone cheats at some time or other," (*c*) "If you cheat your way through school, you will fail in the outside world." This scale is hereafter referred to as the "general" scale (parallel forms reliability, Pearson's $r = .84$).

The second Thurstone scale was constructed with the use of a social learning theory definition of attitude and specifically assessed attitudes toward the treatment of people who cheat on examinations. Items for this scale were designed to tap *Ss*' prior experiences with cheating and to determine what actions were deemed appropriate under particular circumstances relating to cheating on examinations. Thus, they made specific reference to behavior under specified circumstances. Furthermore, this scale was directly tailored to the behavior to be predicted. Items included, for example, (*a*) "People caught using hidden notes should be given a failing exam grade," (*b*) "Copying answers from another person's paper is not a serious offense," (*c*) "Students caught cheating on exams should be severely punished." This scale is hereafter called the "specific" scale (parallel forms reliability, Pearson's $r = .82$).

The behavior chosen to be predicted was the severity of punishment

prescribed by the *S* for a student accused of cheating on a classroom examination. The measure of behavior was built around a mock trial where *S*s were sitting in judgment of other students accused of cheating. *S* behavior was self-reported on a "verdict form" supplied by the *E*. The severity of punishment score was based upon five fixed alternative verdict choices which ranged from "not guilty" through "rebuke and warn: place a note in the student's permanent file" to "give student a failing course grade."

2. *Procedure*

After selection, *S*s were given the questionnaire and randomized into three to five person groups which subsequently served as juries at the mock cheating trials. Three weeks after the administration of the questionnaire, the courtroom phase of the experiment was begun. Jurors were shown into a simulated courtroom and given their verdict forms. Two confederates, one posing as a defendant who had been caught cheating on an examination and the other as the instructor's assistant who had caught the cheater, were introduced. Each confederate read a "prepared statement" describing the incident from their respective points of view and then left the room. No discussion was permitted among the jurors and no one was allowed to question the confederates. After the confederates left the courtroom, the *E* instructed the jurors to mark their verdicts and as the forms were collected, each juror was assigned a debriefing appointment.

C. Results

The hypotheses suggested initially may now be readdressed in more precise terms. First, it was argued that two distinct scales based on differing conceptions of attitude (i.e., one with a specific referent and one with a general referent) could be devised to assess attitudes and actions toward cheating.

This theoretical claim is supported in that each scale is reliable (specific scale, $r = .82$; general scale, $r = .84$) and the two scales are uncorrelated ($r = .03$).

Furthermore, on the basis of Doob's reasoning, it was hypothesized that the specific scale, derived from a more precise definition and carefully tailored to fit the target behavior, would be more closely correlated with behavior than the general scale. This claim is also borne out by the data

which indicate a significant difference between the two scales in their correlation with S behavior (specific scale, $r = .34$, $p < .01$; general scale, $r = .09$, NS), with the specific scale having the highest coefficient.

D. Discussion

The research at hand was not designed to evaluate the relative merits of a social learning conception of attitude *versus* a conventional approach. What was evaluated, however, was the effect of scale specificity on the correlation between scale score and behavior. Two general conclusions are supported by the data. First, it was found that by carefully and systematically conceptualizing attitude in terms of its etiology and empirical referents, one can develop rules for constructing and selecting scale items on a substantive basis which then supplements statistical rules for selection (e.g., those requiring internal consistency, agreement on categorical placement of items by judges, etc.). Second, it was found that attitude scales tailored specifically to a particular behavioral criterion were more highly correlated with that criterion than scales which were not so tailored.

Finally, without regard to substantive preference for either a social learning or a more cognitive approach to attitudes, the present findings have at least one important implication for attitude-behavior research. While the specific scale was substantially more correlated with behavior than the general scale, it still accounts for only 12% of the variance. This finding, however, is compatible with the results obtained by other researchers (e.g., La Pierre, Nettler, Corey) who, while taking care to construct a scale tailored to the behavior under consideration, did not introduce controls for situational variables [see Wicker (12)]. While some might be tempted to conclude that, on the basis of these results, attitude is unrelated to subsequent behavior, a more correct conclusion given the research design is that taken by itself, attitude is not a particularly efficient estimator of behavior. Although the situational (intervening) variable argument itself was not directly tested, it was established that, apart from any other variables a researcher might wish to control, some portion of the correlation between attitude and behavior is accounted for by the nature of the scale used and the specificity of the behavioral criterion. Therefore, no matter how many intervening variables may be controlled, no clear assessment of the attitude-behavior relationship is possible without careful attention to details concerning the content and construction of the particular scale that is employed.

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CROSS-CULTURAL NOTES

Under this heading appear summaries of studies which, in 500 words or less, provide comparable data from two or more societies through the use of a standard measuring instrument; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

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RELATIONSHIP OF INTERNAL-EXTERNAL CONTROL AND NATIONAL SUICIDE RATES*

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Since suicidal individuals are characterized by feelings of hopelessness,[1] it seems that suicidal behavior should be related to a measure such as the Rotter[2] Internal-External (I-E) control scale, which assesses the extent to which events are perceived as controlled by one's own efforts rather than by external forces. If suicidal behavior is related to perceived degree of control, countries whose inhabitants perceive relatively high degrees of control over their life situations should have lower incidences of suicide than countries whose inhabitants perceive less control. This study investigated the relationship of the mean I-E scores reported by recent investigators for several countries to their most recently reported national suicide rates.

McGinnies, Nordholm, Ward, and Bhanthumnavin[3] reported mean I-E scores for college students in Australia, Japan, New Zealand, Sweden, and

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[1] Melges, F., & Bowlby, J. Types of hopelessness in psychopathological process. *Arch. Gen. Psychiat.*, 1969, **20**, 690-699.

[2] Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. *Psychol. Monog.*, 1966, **80**(1), Whole No. 609.

[3] McGinnies, E., Nordholm, L. A., Ward, C. D., & Bhanthumnavin, D. L. Sex and cultural differences in perceived locus of control among students in five countries. *J. Consult. & Clin. Psychol.*, 1974, **42**, 451-455.

the United States, and Parsons and Schneider[4] reported I-E scores for students in Canada, France, India, Israel, Italy, Japan, the United States, and West Germany. In both studies the number of male and female *Ss* from each country was approximately equal, and all *Ss* were selected by similar procedures. The I-E data obtained in those studies for Japan and the United States were combined into a single score for each country, and India was excluded from the present study because suicide data were not available. I-E scores may range from 0 to 23, and high scores indicate perceptions of external control.

The mean I-E scores and the suicide rates per 100,000 population per year[5] for the 10 countries were, respectively: New Zealand, 10.1, 8.3; Israel 10.3, 6.8; United States 10.3, 11.7; Italy 10.5, 6.0; Canada 10.9, 12.2; Australia 10.9, 12.5; West Germany 10.9, 20.9; France 11.0, 15.4; Japan 12.1, 16.8; Sweden 14.6, 20.3. The correlation between these measures is significant ($r = .68$, $df = 8$, $p < .05$).

It thus appears that cultures that foster high perceptions of external control also foster high suicide rates. Some cultural factors that may affect perceived control have been discussed.[3, 4] Those factors may also influence suicidal behavior, or perceived control may intervene between various cultural characteristics and suicidal behavior. Parsons and Schneider also reported mean scores from four I-E subscales (Luck-Fate, Respect, Academic, Leadership-Success), but none of those scores correlated more highly with suicide rates than did total I-E scores, suggesting that suicidal behavior is related to generalized perceptions of locus of control rather than to perceived control in any particular domain. Finally, relationships such as that obtained in this study support the general view that variations among national suicide rates primarily reflect actual differences in suicidal behavior rather than possible inconsistencies in data collection.

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[4] Parsons, O. A., & Schneider, J. M. Locus of control in university students from Eastern and Western societies. *J. Consult. & Clin. Psychol.*, 1974, 42, 456-461.

[5] World Health Organization. *World Health Statistics Report*, 1974, 27, 198-199.

REPLICATIONS AND REFINEMENTS

Under this heading appear summaries of studies which, in 500 words or less, provide useful data substantiating, not substantiating, or refining what we think we know; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, **100**, 145-146.

THE BYSTANDER EFFECT AS A FUNCTION OF AMBIGUITY AND EMERGENCY CHARACTER*

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Although it is known that ambiguity[2] as well as emergency character[3] of help-needed situations determine bystander effects (inhibition of helping as a function of number of people present), the joint effect of these factors has not been considered within the context of a single study. Also, ambiguity and emergency character may operate differently in a field setting as opposed to a laboratory setting. For these reasons the two factors were manipulated on a high traffic density highway (large number of people present) and a low traffic density highway (small number of people present). Each of four conditions was instituted in both highway settings: (*a*) ambiguous nonemergency—An automobile was parked to the side of the two highways with a driver seated behind the wheel; (*b*) ambiguous emergency—The automobile was parked off the two highways and at a 45° angle to the road with the driver slumped over the wheel; (*c*) unambiguous nonemergency—The automobile, with an apparent flat tire, was parked parallel to the highways, with the driver positioned outside the car next to

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[1] Requests for reprints should be sent to the second author at the address shown at the end of this article.
[2] Clark, R. D., & Word, L. E. Why don't bystanders help? Because of ambiguity? *J. Personal. & Soc. Psychol.*, 1972, **24**, 392-400.

a jack and a spare tire[3]; (*d*) unambiguous emergency—The automobile was off the highways at a 45° angle, the driver's side door was open revealing the driver slumped over the seat, and the emergency flashers were on. In all eight cases the driver (victim) was a coed. Bystander effects were assessed independently for the four conditions by comparing the proportion of helpers on the high and low traffic density highways for each condition. In all but the unambiguous emergency, helpers were thanked for stopping, told that help was on the way, and assured that the victim was not in danger. In the unambiguous emergency condition, helpers were thanked, given a sheet describing the purpose of the study, and asked if they had any questions.

As expected, there was no bystander effect in the ambiguous nonemergency ($\chi^2 \approx 0$): it was anticipated that bypassers would assume that "nothing unusual is going-on."[4] Contrary to previous results there was no bystander effect in the ambiguous emergency ($\chi^2 \approx 0$) possibly because the stimulus situation was complex relative to its laboratory counterpart and thus bypassers were unable to filter out sufficient information to suggest "emergency." The significant bystander effect in the unambiguous nonemergency ($\chi^2 = 4.27, p < .05$) replicated Hurley and Allen.[3] Contrary to previous results,[2] a bystander effect was observed in the unambiguous emergency ($\chi^2 = 28.06, p < .01$). The greater proportion of helpers on the low density highway in this condition may have been due to the fact that models of inaction (social influence) and potential helpers (diffusion of responsibility) were almost always in sight on the high density highway, but almost never in sight on the low density highway.[4] The following statistically significant overall effects were obtained: A greater proportion of helpers was observed (*a*) in the emergency as compared to the nonemergency situations; (*b*) in the unambiguous as compared to the ambiguous situations; and (*c*) on the low density highway as compared to the high density highway.

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[3] Hurley, D., & Allen, B. P. The effect of the number of people present in a nonemergency situation. *J. Soc. Psychol.*, 1974, **92**, 27-29.

[4] Latane, B., & Darley, J. M. The Unresponsive Bystander: Why Doesn't He Help? New York: Appleton-Century-Crofts, 1970.

The Journal of Social Psychology, 1976, **100**, 147-148.

THE EFFECTS OF CORE FACILITATIVE CONDITIONS IN MOTHER ON ADOLESCENT SELF-ESTEEM*[1]

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Rogers[2] has theorized that such conditions as empathy, genuineness, and positive regard are essential and sufficient components in effective interpersonal functioning. Carkhuff[3] has investigated these facilitative conditions and found them to be relevant in exploring the effectiveness of relationships between both adults and adolescents. The purpose of the present study was to assess the core facilitative conditions of mother as emphasized by Rogers and how they relate to self-esteem in the adolescent. It was hypothesized that mothers who are more empathic, genuine, and possessing positive regard had adolescents with higher levels of self-esteem than those mothers who were lacking in empathy, genuineness, and positive regard.

Selection of *S*s was made from a random selection of schools in a large metropolitan school system in five suburban school districts in northeastern United States. *S*s consisted of 203 eighth-grade level children and their mothers. Three hundred pairs comprised the initial sampling. The Self-Esteem Inventory[4] is a 58-item inventory with five subscales: general self, social self, home-parent, school-academic, and an estimate of social desirability. The Relationship Inventory—B[5] is a 30-item inventory gathered and adapted for use with parents to assess affective and empathic reactions in family interaction. Represented are a wide range of social and educational backgrounds. Participation in the project was voluntary.

* Received in the Editorial Office, Provincetown, Massachusetts, on June 18, 1975. Copyright, 1976, by The Journal Press.

[1] Research Foundation of State University of New York, Grant No. 50-8890-F supported this study. Requests for reprints should be sent to the author, at the address shown at the end of this article.

[2] Rogers, C. R. Client-Centered Therapy: Its Current Practice, Implications, and Theory. Boston: Houghton-Mifflin, 1951.

[3] Carkhuff, R. Helping and Human Relations. New York: Holt, Rinehart & Winston, 1969.

[4] Coopersmith, S. The Antecedents of Self-Esteem. San Francisco: Freeman, 1967.

[5] Bierman, R. The Relationship Inventory-B: An experimental questionnaire for parents to assess facilitative family interaction. Discussion Paper No. 2, The Psychiatric Clinic, Buffalo, New York, June 1967.

The overall test of maternal relationship with the child's level of self-esteem is significant ($F = 2.61$, $df = 12/194$, $p < .05$). Correlation coefficients between maternal empathy toward the child and the child's self-esteem are significant ($r = .16$, $p < .05$), the maternal genuineness toward the child and the child's self-esteem ($r = .19$, $p < .05$), and the maternal positive regard toward the child and the child's self-esteem ($r = .27$, $p < .05$).

The level of empathy, genuineness, and positive regard of the mother toward her child was then found to be significantly related to the general self-image and social self-image of the child. These results are in the predicted direction and thereby indicate that where maternal empathy, genuineness, and positive regard were high, the child's self-esteem was also higher than where maternal empathy, genuineness, and positive regard were found to be low. Of interest in this sample is that the mothers tested showed higher levels of empathy, genuineness, and positive regard toward their daughters than their sons. Consistent with this finding is the fact that the girls had slightly higher levels of overall self-esteem than did the boys. It would seem clear that what Rogers had referred to as the core facilitative conditions are considered to be an enhancing factor in the self-esteem needs of the emerging adolescent.

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CURRENT PROBLEMS AND RESOLUTIONS

Under this heading appear summaries of data which, in 500 words or less, would increase our comprehension of socially compelling problems, hopefully move us somewhat closer to a solution, and clearly show promise of transcending their own origin in the Zeitgeist; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, **100**, 149-150.

AIR POLLUTION AND RECREATIONAL BEHAVIOR*

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Despite the recent concern of psychologists, little is known about how exposure to air pollution affects the day-to-day behavior or life styles of the vast majority of individuals.[1]

Multiple regression was used to determine the relationship between air pollution and daily attendance at three recreational sites within New York City: the American Museum of Natural History (July-December, 1972; 1973), the New York Aquarium on Coney Island (1973), and the Central Park Children's Zoo (1972, 1973). Since each site-year combination was treated separately, a total of five analyses were conducted. Daily levels of sulfur dioxide, smokeshade, carbon monoxide, and oxidants for the years 1972 and 1973 were obtained from the city's Department of Air Resources. Temperature, precipitation, month, holidays, and day of the week were also included as predictors of attendance and as control variables.

It was expected that pollutants which reach or exceed the city's designation for unsatisfactory or unhealthy on a number of days would be most likely to affect recreational behavior. Smokeshade in 1972 (30 days) and

* Received in the Editorial Office, Provincetown, Massachusetts, on May 16, 1975.
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[1] Wohlwill, J. F., & Carson, D. H. (Eds.), Environment and the Social Sciences: Perspective and Applications. Washington, D.C.: *Amer. Psychol. Assoc.*, 1972.

1973 (78 days), carbon monoxide in 1972 (72 days), and oxidants in 1973 (16 days), meet this criterion.

Three of the 20 standardized beta weights relating pollution to attendance were significantly different from zero.[2] The two significant negative betas indicated that as oxidants increased in 1973, attendance at the Aquarium decreased ($B = -.104$, $t = -3.13$, $df = 330$, $p < .01$), and as carbon monoxide increased in 1972 attendance at the Zoo decreased ($B = -.206$, $t = -2.77$, $df = 340$, $p < .01$). Both of these pollutants reached the "unhealthy" level a number of times in those years.

Why smokeshade, which reached "unsatisfactory" levels in 1972 and 1973, did not significantly affect attendance is unclear. One possibility is that the level of smokeshade designated "unacceptable" is too low to affect recreational behavior. The other question that arises is why the other recreational sites were not affected by oxidants in 1973 or carbon monoxide in 1972? The Museum may not be affected because it is indoors and as such is less susceptible to environmental forces. Neither temperature nor precipitation was significantly related to attendance at the Museum in 1972 or 1973. However, why the indoor sites were not affected is unclear at this time.

The significantly positive beta, indicating that as carbon monoxide increased in 1973, attendance at the Museum also increased, was unexpected ($B = .141$, $t = 2.16$, $df = 336$, $p < .05$). One might explain this by assuming that the Museum is used as an escape from undesirable levels of carbon monoxide. However, an escape explanation is weakened by the facts that in 1973 the levels of carbon monoxide were generally "acceptable," and that people did not seem to use the Museum to avoid other environmental forces.

In sum, air pollution does have a limited effect on recreational behavior in New York City. The magnitude of this relationship may be moderated by the levels of pollution experienced, the specific type of recreational site, and the ability of individuals to adapt.[3]

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[2] A complete set of tables may be obtained from the first author at the address shown at the end of this article.

[3] Glass, D. C., & Singer, J. E. Urban Stress: Experiments in Noise and Social Stressors. New York: Academic Press, 1972.

The Journal of Social Psychology, 1976, **100**, 151-152.

TRUST, ANOMIA, AND LOCUS OF CONTROL: ALIENATION IN U. S. COLLEGE STUDENTS IN 1964, 1969, AND 1974*[1]

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The importance of interpersonal trust in facilitating the give-and-take of everyday social intercourse, and ultimately in maintaining the social order, can hardly be gainsaid. It has often been suggested that a general attitude of mistrust may arise in the individual as a result of defects in the social structure. If this is so, then it is plausible to argue that trust should be included among the several dimensions of alienation.[2] A report of decreases in scores on Rotter's trust scale among college students[3] between 1964 and 1969, when viewed in the context of alienation studies during the past decade, suggests that trust and alienation have been varying together in a predictable fashion in the college population. The present investigation attempts an explicit comparison of changes in trust with those in more widely recognized dimensions of alienation.

Students enrolled in introductory psychology at two campuses of the State University of New York completed identical versions of Rotter's locus of control scale and Reimanis's revision of Srole's anomia scale in 1964, 1969, and 1974, and of Rotter's trust scale in 1969 and 1974. Sample sizes ranged from 270-728. Rotter's 1964 trust data from 547 University of Connecticut students were used to complete a nine-cell matrix which was analyzed to evaluate alienation trends and to determine the extent of correspondence between the three measures with respect to changes over time.[4]

* Received in the Editorial Office, Provincetown, Massachusetts, on May 22, 1975. Copyright, 1976, by The Journal Press.

[1] The research described here was supported in part by the Research Foundation of the State University of New York. The author is indebted to Richard Egelston, Larry Hjelle, and William Wilkins for their constructive suggestions. Findings were presented at the Eighth World Congress of Sociology, Toronto, Canada, 1974.

[2] Seeman, M. Alienation and engagement. In A. Campbell & P. E. Converse (Eds.), *The Human Meaning of Social Change*. New York: Russell Sage Basic Books, 1972.

[3] Hochreich, D. J., & Rotter, J. B. Have college students become less trusting? *J. Personal. & Soc. Psychol.*, 1970, **15**, 211-214.

[4] The measures and scoring keys used in this study can be obtained free of charge from the author at the address shown at the end of this article. Copies of an extended report, with complete descriptive and inferential statistics, are also available free from the author.

All measures changed significantly in the direction of greater alienation between 1964 and 1969, and between 1964 and 1974. Between 1969 and 1974, mean scores continued to shift in the same direction, but only locus of control showed a statistically significant change during this interval. Changes in trust corresponded perfectly with changes in anomia, and both showed a pattern quite similar to that of locus of control.

From one vantage point, these results clearly confirm other recent reports of increasing alienation among college students. From another, they can be seen as empirical support for the claim that interpersonal trust deserves systematic consideration as one of the subdimensions of alienation.

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SOCIAL CHARACTER AND CONSUMER INNOVATIVENESS*

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Significant progress in identifying demographic and behavioral characteristics of consumer innovators has been made,[1] but numerous questions remain to be answered. For example, one typology that has produced mixed results is Reisman's social character configuration.[2] Ardnt found other-directed individuals more likely to buy a new product than inner-directed people.[3] In contrast, Donnelly found inner-directed housewives to be slightly more innovative in their acceptance of new grocery items than other-directed housewives.[4] Finally, Barban, Sandage, Kassarjian, and Kassarjian could find little relationship between the adoption of farming innovations and social character.[5]

In contrast to the single measure designs used in the past, the present longitudinal study may help resolve the issue of the role of social character in this type of innovativeness. Comparing the social character of early purchasers of a product with that of later purchasers and with purchasers of similar existing products should indicate whether or not social character is actually related to innovativeness.

Since the research was concerned with both social character and innovation, a special type of new product was sought for which the social significance of purchase would be high and the nature of the purchase important. The introduction of the Ford Maverick in 1969 provided such a product, since the purchase of a new model automobile is a relatively high risk decision both financially and socially.

Four groups of Maverick purchasers and four groups of new car buyers

* Received in the Editorial Office, Provincetown, Massachusetts, on June 3, 1975. Copyright, 1976, by The Journal Press.

[1] Robertson, T. Innovative Behavior and Communication. New York: Holt, 1971.

[2] Riesman, D., Glazer, N., & Denny, R. The Lonely Crowd. New Haven, Conn.: Yale Univ. Press, 1950.

[3] Arndt, J. Role of product-related conversations in the diffusion of a new product. *J. Market. Res.*, 1967, 4, 291-295.

[4] Donnelly, J. H. Social character and acceptance of new products. *J. Market. Res.*, 1970, 7, 111-113.

[5] Barban, A., C. Sandage, W. Kassarjian, & Kassarjian, H. A study of Riesman's inner-other directedness among farmers. *Rural Sociol.*, 1970, 35, 232-243.

of already established auto brands were included in the study. County automobile registration records provide the name, address, and type of car purchased for all new automobile sales. These public records were used to select the *S*s for the study. Data were collected from Maverick buyers and buyers of other established makes of similar sized new cars during the first three months of each model year from 1969 to 1972. A total of 332 Maverick buyers (76 in 1969, 84 in 1970, 85 in 1971, and 87 in 1972) and 319 other make buyers (80 in 1969, 78 in 1970, 82 in 1971, and 79 in 1972) participated in the study.

Social character was measured with the I.O. Social Preference Scale, a paper and pencil instrument with a range of scores from 0 to 144.[6] The range of scores (26-114) and the mean (72.6) found for respondents in this study were comparable with earlier studies using the scale. Consistent with Kassarjian, respondents with scores below 72 were classified as other-directed and those with scores over 72 were classified as inner-directed.

Over the four time periods, the social character of Maverick purchasers differed significantly ($\chi^2 = 13.07$, $df = 3$; $p < .01$). Specifically, first year purchasers of the Maverick were significantly more inner-directed than later purchasers. Buyers were less inner-directed and more other-directed as the product became more widely accepted. Additionally, the first year Maverick purchasers were significantly more inner-directed ($\chi^2 = 10.01$, $df = 1$; $p < .001$) than purchasers of new models of other established brands for the comparable time period. As the Maverick became more widely accepted, however, there were no significant differences in years 2, 3, and 4 between Maverick buyers and buyers of other established brands.

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[6] Kassarjian, W. A study of Riesman's theory of social character. *Sociometry*, 1962, 25, 213-230.

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ATTITUDINAL BASES OF RECYCLING*

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To compare glass and can recyclers on dogmatism, liberalism-conservatism, and ecology items, interviews were conducted in 1974 at a shopping center with a recycling station. Sixteen female and 12 male recyclers and 28 nonrecyclers matched for age and sex answered a 31-item "Opinion Survey" which included 15 Dogmatism Scale items,[1] six liberalism-conservatism items, and two environmental items.

No significant differences between the two groups existed for liberalism-conservatism, total dogmatism, or any dogmatism factor (belief in one truth, belief in a cause, virtuous self-denial, self-proselytization, derogation and isolation, and authoritarianism). Reliable differences were found for three of the 31 items, including the environmental ones. Forty-six percent of the recyclers but only 4% of the nonrecyclers agreed that "Solving the problems of pollution is even more important than solving the problems of poverty" ($\chi^2 = 9.44$; $df = 1$; $p < .002$), yet none of the possibly related liberalism-conservatism items significantly differentiated these two groups. Similarly, 89% of the nonrecyclers but only 60% of the recyclers agreed that "the so-called 'gas shortage' was just a phony to let the gas companies raise the price of gas" ($\chi^2 = 4.34$; $df = 1$; $p < .04$). A nonecological current events item (about Watergate) was answered similarly by both groups ($\chi^2 = .008$; $df = 1$; $p > .05$). A Rokeach item also discriminated significantly: "Unfortunately, a good many people with whom I have discussed important social and moral problems don't really know what's going on;" 90% of the nonrecyclers, but only 54% of the recyclers agreed with this ($\chi^2 = 6.69$; $df = 1$; $p < .01$).

Thus, while the two groups differed neither in dogmatism nor in liberalism-conservatism, they differed on three attitudinal items, including both environmental ones. It is worth stressing that the discriminating items

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[1] Rokeach, M. The Open and Closed Mind. New York: Basic Books, 1960; Steininger, M., & Lesser, H. Dogmatism, dogmatism factors, and liberalism-conservatism. *Psychol. Rep.*, 1974, 35, 15-21.

were neither "behavioral"[2] nor specifically about recycling. Rather, it seems likely that the more related an item is in the respondents' minds with the behavior studied, the more discriminating it will be.

Since recycling behavior seems to be related to attitudes about the environment but not to more central features of the personality, such behavior (as opposed to that involved, for example, in "busing") should be easily modifiable by external rewards. The effects on those who recycle now, without external rewards, are harder to predict. Introducing expected external reinforcement for an intrinsically rewarding activity may actually decrease the attractiveness of that activity;[3] however, this seems unlikely in the case of recycling, since those recycling now might then believe that they had served as models for the entire community and that they were instrumental in bringing about "payment for recycled materials." One might predict that they would go on recycling, but the "glory" may then have gone out of this activity.

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[2] Kothandapani, V. Validation of feeling, belief, and intention to act as three components of attitude and their contribution to prediction of contraceptive behavior. *J. Personal. & Soc. Psychol.*, 1971, 19, 321-333; Wicker, A. W. An examination of the "other variables" explanation of attitude-behavior inconsistency. *J. Personal. & Soc. Psychol.*, 1971, 19, 18-30.

[3] Lepper, M. R., Green, D., & Nisbett, R. E. Undermining children's intrinsic interest with extrinsic reward: A test of the "over-justification" hypothesis. *J. Personal. & Soc. Psychol.*, 1973, 28, 129-137.

The Journal of Social Psychology, 1976, **100**, 157-158.

CHARACTERISTICS ASSOCIATED WITH EXPRESSED WILLINGNESS TO PARTICIPATE IN PSYCHOLOGICAL RESEARCH*[1]

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MAC GRIFFITH AND C. EUGENE WALKER

The issue of volunteer bias represents an enduring and largely unresolved problem in psychological research. Recent debate has centered upon the existence and pervasiveness of volunteer-nonvolunteer differences as sources of artifact. While the resolution of this issue has significant theoretical and practical import, it should also be of interest to examine volunteering itself as a meaningful psychological phenomenon. The present study attempted to provide information with respect to both of these goals by examining differences between volunteers and nonvolunteers on two theoretically relevant personality measures—the Zuckerman Sensation Seeking Scale (SSS) and the Mosher Guilt Inventory (GI).[2] These differences were assessed in the context of an expressed willingness to volunteer for a number of different kinds of psychological experiments. It was hypothesized that selective differences on the personality scales would accrue to particular kinds of experiments in a theoretically meaningful manner. It was also felt that an approach of this nature would provide investigators in particular areas with information concerning potential problems of volunteer bias.

*S*s were 75 males and 81 females from junior and senior level psychology courses at Baylor University. During classes, *S*s were given Form IV of the SSS and the GI. They were then given a sheet listing six different experiments and were asked to respond yes-no to whether they would be willing to volunteer for each of these studies. The experiments were described as being concerned with vigilance, psychophysiology, sensory deprivation, human sexual behavior, hypnotic susceptibility, and reaction time. A brief

* Received in the Editorial Office, Provincetown, Massachusetts, on June 7, 1975.
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[1] An extended version of this report is available upon request from the senior author.

[2] See Zuckerman, M., *et al.* What is the sensation seeker? Personality trait and experience correlates of the sensation-seeking scales. *J. Consult. & Clin. Psychol.*, 1972, **39**, 308-321. Also Mosher, D. L. The development and multitrait-multimethod matrix analysis of three measures of three aspects of guilt. *J. Consult. Psychol.*, 1966, **30**, 25-29.

descriptive phrase was included which further described the kind of task *S*s might be asked to perform in each of these experiments. This questionnaire was presented in a hypothetical manner, and *S*s were not informed that they might receive special incentives such as class credit if they volunteered.

Different patterns of results were obtained for males and females. Males who volunteered for the sex experiment were significantly higher on the disinhibition subscale of the SSS. There was a significant correlation between the number of experiments volunteered for and high hostility guilt for males. For all of the experiments except reaction time, females who volunteered were significantly higher in disinhibition. The same result obtained for females on the experience seeking subscale of the SSS. For all experiments, females who volunteered were significantly lower in sex guilt. With the exception of the sensory deprivation experiment, females who volunteered were significantly lower on the morality-conscience subscale of the GI.

Considered as a whole, the obtained pattern of results is consonant with predicted relations based upon the personality constructs involved and the particular kinds of experiments for which *S*s were asked to volunteer. This approach is predicated upon an interpretation of the volunteer problem as being specific to the interaction of particular personality characteristics and particular situation variables, such as the kind of experiment being volunteered for, conditions of volunteering, incentive levels, etc.

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Animal	*Anim.*	Medical	*Med.*
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Association	*Assoc.*	Neurology	*Neurol.*
Attitude	*Attit.*	Opinion	*Opin.*
Australian	*Aust.*	Orthopsychiatry	*Orthopsychiat.*
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British	*Brit.*	Personnel	*Person.*
Bulletin	*Bull.*	Philosophy	*Philos.*
Bureau	*Bur.*	Physics	*Phys.*
Canadian	*Can.*	Physiology	*Physiol.*
Character	*Charac.*	Proceedings	*Proc.*
Children	*Child.*	Psychiatry	*Psychiat.*
Chinese	*Chin.*	Psychoanalysis	*Psychoanal.*
Clinical	*Clin.*	Psychology	*Psychol.*
College	*Coll.*	Psychosomatic	*Psychosomat.*
Comparative	*Comp.*	Quarterly	*Quart.*
Consulting	*Consult.*	Religious	*Relig.*
Contributions	*Contrib.*	Research	*Res.*
Development	*Devel.*	Review	*Rev.*
Educational	*Educ.*	School	*Sch.*
Experimental	*Exper.*	Science	*Sci.*
General	*Gen.*	Social	*Soc.*
Genetic	*Genet.*	Statistics	*Stat.*
Indian	*Ind.*	Studies	*Stud.*
Industrial	*Indus.*	Teacher	*Teach.*
International	*Internat.*	University	*Univ.*
Italian	*Ital.*		

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Genetic Psychology Monographs *(continued)*

VOLUME 86—July-December, 1972

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Genetic Psychology Monographs *(continued)*

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(Manuscripts are printed in the order of final acceptance)

Socioeconomic status and intelligence related to children's serial recall 163
By Anne Keeton and Leslie D. McLean

The identity status of Nigerian university students 175
By R. Olukayode Jegede

Delay of gratification and abstract ability in three societies 181
By Gary Granzberg

Zambian student attitudes toward others, based on tribe, class, and rural/urban dwelling 189
By Douglas W. Bethlehem and Phillip R. Kingsley

The validation of dissonance *versus* impression-management theories 199
By James E. Klusman and Jacob E. Hautaluoma

Is there reactance in personal space? 207
By Julian J. Edney, Carol A. Walker, and Nancy L. Jordan

Modeling, arousal, and aggression 219
By Judith L. Fisher and Mary B. Harris

(OVER)

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Revising race prejudice scales 227
By Stanley Rosenberg, Michael Farrell, and John Gorman

Occupational stresses and job satisfaction 235
By Ronald J. Burke

Affective consequences of disconfirming performance exceptions 245
By Daniel R. Ilgen and John D. Gunn

Anonymity and group antisocial behavior 257
By Eugene W. Mathes and Thomas A. Guest

The effects of experimentally induced illusions of invulnerability and vulnerability on decisional risk taking in triads 263
By John E. Thompson and Alan L. Carsrud

Effects of social satiation on efficacy of social and nonsocial reinforcers 269
By Elisha Y. Babad and Paula Weisz

Acquaintance links between residents of a high rise building: An application of the "small world" method 277
By Stephen Bochner, Robert Duncan, Elizabeth Kennedy, and Sred Orr

Defendant sentences as a function of attractiveness and justification for actions 285
By Richard Izzett and Leslie Fishman

The effect of an interview on perception of the interviewing organization 291
By Martin M. Greller and Richard B. Cech

Persuasibility and persuasiveness as a function of sex 299
By Roberta Steinbacher and Faith D. Gilroy

CROSS-CULTURAL NOTES

Coins and countries: The value-size hypothesis 307
By Jan L. Hitchcock, Robert L. Munroe, and Ruth H. Munroe

REPLICATIONS AND REFINEMENTS

The effects of salience of consequences on attitudes towards Women's Liberation ... 309
By Henry Solomon, Lenore Singer, and Linda Zener Solomon

Cooperation *versus* competition in group concept attainment under conditions of informational exchange 311
By Connie Schick and Richard P. McGlynn

Eye, contact, topic intimacy, and equilibrium theory 313
By David R. Anderson

Effects of victim injury, victim competence, and defendant opportunism on the decisions of simulated jurors 315
By Myron Boor

CURRENT PROBLEMS AND RESOLUTIONS

Investigating ethnic prejudice among boys in residential treatment 317
By Charles Schaefer and Swan Brown

Effects of persuasive communication on acceptance of a course on population dynamics 319
By Janak Pandey and M. E. Khan

Construct validity of self-estimated *IQ* scores 321
By H. Wayne Hogan

BOOKS RECENTLY RECEIVED 323

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SOCIOECONOMIC STATUS AND INTELLIGENCE RELATED TO CHILDREN'S SERIAL RECALL*[1]

The Ontario Institute for Studies in Education

ANNE KEETON AND LESLIE D. MCLEAN

SUMMARY

The study examines information processing of Canadian children from inner-city and suburban backgrounds. Jensen (16) suggests that children from inner-city and suburban environments encode digit series for recall by different intelligence-related processes. In a replication and extension of Jensen's work, significant differences were found in the serial position effect of recall. Suburban children recalled a greater number of early-presented, primacy items, while inner-city children (who had equivalent digit span capacity) recalled a larger number of later, recency items. These differences, which were not found in Jensen's study are attributed to the preferred information-handling strategies of each group rather than to differences in intellectual capability (Raven's Matrices, PPVT).

A. INTRODUCTION

Developments in the study of memory have given rise to speculations that the strategies or rules used by *S*s are important in understanding memory function (18, p. 7). Recently attention has been directed to the development of memory mediating strategies. Two reviews of research on children's memory emphasized the need for further examination of the planful purposive strategies which are indicated by the organization of responses of children performing memory tasks (10, 13).

Several theories of cognitive development emphasize that qualitative changes in the development of children's intellect result from an increasing ability to formulate and apply information processing strategies within the constraints of short-term memory parameters (e.g., 5, 20). Furth (12)

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[1] The research described here is based on a Ph.D. dissertation submitted by the first author to the Department of Educational Theory (O.I.S.E.), University of Toronto, Ontario, 1973.

presents Piaget's position on the development of memory. "Memory performance depends most on operative schemes and can be expected to show corresponding changes as these schemes develop or change in importance." However, other theories emphasize a quantitative increase in short-term information handling capacity with age, as implied for example in the digit span index of the Stanford-Binet and Wechsler Intelligence Scales, and in an equation for the transition rule for performance on Piagetian tasks (6, 19).

Evidence for qualitative differences in developmental memory mediating processes have seldom been explored for short-term retention tasks. Digit span and related tasks have long been assumed to reflect the *S*'s span of apprehension, or quantitative capacity for integrating data (9, 17). However, Jensen (16) provided evidence that differences occur in digit span recall patterns, in this case in children of four years of age, 50 from inner-city low socioeconomic status (SES) and 50 from suburban, high SES backgrounds. These two groups of children differed in intelligence by 20 *IQ* points as measured by the Peabody Picture Vocabulary Test (P.P.V.T.). Children provided free recall responses to series of digits between two and nine items in length. In a principal components analysis of the responses, inner-city children's ability to recall sequences of adjacently presented items, for series of supraspan length seven, eight, and nine items, correlated with a factor on which loaded the P.P.V.T. and which was therefore designated by Jensen as an intelligence factor. Suburban children's responses showed a P.P.V.T.-related factor on which loaded average span length series of four, five, and six items scored for the recall of correct position. In other words, although total recall performance was similar in the two groups, different forms of digit recall patterns appeared in children from differing sociocultural backgrounds. Suburban children appeared to retain position information in average span length series, while inner-city children appeared to retain associations between adjacent items in longer length series. Jensen concludes, "There is some indication that low and high SES children encode the digit series by different mental processes, even though they differ little, if at all, in their capacity to recall a series of spoken digits. Evidence for different encoding processes emerges when digit recall is scored in different ways" (16, p. 1333).

The present study investigated whether differences may be identified in the recall patterns of serially presented digits by children with an average age of 6.10. The purpose of the study therefore was to repeat and extend Jensen's methods for collecting evidence of two learning processes, with

Canadian children from suburban and inner-city white European backgrounds. The assumption was made that differing patterns of recall might indicate alternative mediational strategies for sequential information processing in children of this age. Since previous investigators have been unable to detect rehearsal strategies in children of less than eight or nine years of age (1, 2, 11), other techniques for examining serial recall patterns, such as subject-controlled item-selection times, accuracy of responses to cued probes, and traditional serial position scoring methods, were rejected in favor of pursuing Jensen's suggestion that different recall patterns could be detected by separating free recall digit span scores for the retention of positional and sequential information. The overall retention of digit information for each scoring technique provided an indication of short-term memory capacity in both groups of *S*s.

B. Method

1. *Measures*

Of 37 measures collected, five concerned age, intelligence, and socioeconomic home backgrounds. Since performance on intelligence tests has been related to digit span performance, the Peabody Picture Vocabulary Test was included which Jensen designates as a measure of intelligence in his own study. Since the P.P.V.T. may contain a cultural bias in favor of the language experiences of suburban children, two low-verbal measures were added, the Raven's Colored Progressive Matrices, Children's Form, and the Figure Copying Test (15), a spatial readiness test purporting to measure intelligence as related to school learning ability.

The two major variables derived from the free recall digit span task were (a) *Primacy*, the number of pairs of digits recalled in correct forward or backward adjacent sequence in the *first* half of the presented series, and (b) *Recency*, the number of adjacent pairs recalled in the *second* half of the presented series. The primacy and recency pairs measures were used for several reasons. In a free recall task, children of this age typically report some of the presented items but may continue to generate random strings of further items, sometimes far exceeding the length of the presented list. It is therefore impossible to identify under the free recall paradigm those single items which are correctly recalled and not guessed. Correct item *pairs* yields a more reliable recall measure by reducing the probability of scoring false positive responses due to guessing. Serial position effects and overall retention capacity were therefore assessed by scoring correctly recalled

adjacent pairs of items rather than the traditional single item indices derived from probe techniques. A second reason for using the pairs measure was to preserve the information in Jensen's original sequence or adjacency measures which, he suggested, characterized the recall patterns of inner-city children on supraspan length series. However, by examining adjacent pairs recalled from the two halves of the presented series, the separate effect of position and sequence could be quantified.

Primacy and recency measures provide a general indication of the operation of primacy and secondary memory components in recall tasks (21). Differences in rehearsal and other secondary memory retention processes would tend to affect the level of recall in the early-presented items in the series, while primary memory and decay variables might be indicated in the recall of items in the latter part of the series. The positional and adjacency differences in recall patterns which Jensen proposed would therefore be reflected differentially by these two measures.[2]

2. *Subjects*

One hundred children participated in the study. Fifty were enrolled in a school serving the industrial downtown area of Canada's largest steel manufacturing city. This school has been designated as "inner-city, disadvantaged" by the School Board. Fifty children from a school in a residential suburb of the same city constituted the suburban sample. The children were an average 82.58 and 82.42 months of age, respectively. The mean socioeconomic index of the fathers' occupations (3) of the suburban group was 21 points higher than that of the inner-city group, a difference significant at $p < .05$.

3. *Procedure*

Children were tested individually during two separate testing sessions on successive school days. They were presented with two sets of digit series on the first session, and one on the second session. Children were allowed to play with a large stuffed toy after completing their task in the second session. Each set of digits consisted of six trials, containing one series each of lengths four to nine items, presented in that order. There were two unscored trials of four item series preceding each set, to familiarize children

[2] For example, if a child is presented with the seven item series 4 2 1 5 9 6 8, and he responds 4 2 5 8 6 2, his primacy score would be 1 for the pair 4-2, and his recency score would be 1 for the pair 8-6. The central item, 5, would be excluded, since it occurs in the centre of an odd-number series. This metric permits a maximum score of 1 + 1 for series lengths 4 and 5, 2 + 2 for lengths 6 and 7, and 3 + 3 for lengths 8 and 9.

with the task. Each testing session was conducted during school hours in a quiet room adjacent to the classroom. Black printed digits, three inches in height, were presented sequentially on blue flash cards at a distance of three feet from the child. Cards were flipped over at a rate of one per second. An orange blank card marked the end of each series and provided the cue for the child to respond. He was instructed at the beginning of the task and again following the third series to "Read the cards to me. When we get to the empty card, tell me what you just read. Tell me in the order that you read them."

Responses were recorded on cassette tape concealed in the stuffed toy, and scored later.

C. Results

Primacy and recency digit-pair recall scores were averaged for six trials at each of the series lengths four and five, six and seven, eight and nine. (The middle digits for series lengths five, seven, and nine were disregarded.)

Because each pupil was tested at all lengths and each response yielded both a primacy and recency score, we have a repeated measure design for which ordinary univariate analysis of variance is inappropriate. In addition to the design on the measures, there was the simple one-way design on the pupils, a factor that the Blishen index justifies being labelled socioeconomic status (SES). We wish to test for SES differences and for interaction between SES, length, and scoring.

A multivariate procedure was used (4). An orthogonal transformation was first applied to the repeated measures, yielding new "variables" corresponding to the effects of interest: *viz*. primacy *vs*. recency score, change with length of series, and possible interactions of these two. A joint multivariate test of these new "variables" was within the one-way design, followed by separate univariate tests when the joint test indicated in both cases that nonchance effects were present.

In Table 1 is presented the multivariate analysis of variance of digit recall scores, transformed to reflect the 2 × 3 design on the scores [primacy-recency Scoring (P-R) × Length (L)] and the one way design on the *S*s [inner-city × suburban Groups (G)].

The effect of principal interest, SES group × Scoring [bottom half, G × (P-R)] is significant. There is thus strong evidence to conclude that different recall patterns characterized the responses of the two SES groups.

Further, the inner-city children show a different pattern in recency from

TABLE 1
MULTIVARIATE ANALYSIS OF VARIANCE OF DIGIT RECALL SCORES

Source of dispersion	*df*	Mean square	Multivariate Fo	Multivariate $p <$ (df = 1,93)	Univariate Fo	Univariate $p <$ (df = 1,98)
Constant (across groups)	1	34410.25				
Scoring (P-R)		927.20			147.31	*.001*
Length linear 1 (L1)		84.50	278.97	.0001	22.22	*.001*
quad. 2 (L2)		49.31			18.06	*.001*
(P-R) × L1		50.00			53.65	*.001*
(P-R) × L2		18.38			17.53	*.001*
Between groups (G)	1	72.25			3.63	.060
G × Scoring (P-R)		44.22			7.03	*.009*
G × Length 1		5.78			1.52	.221
G × L2		6.83	2.6	.02	2.50	.117
G × L1 × (P-R)		3.92			4.20	*.043*
G × L2 × (P-R)		.00			.00	.968
Within group mean square	98	2.60				

their primacy scores as the length of the series increases, while the suburban group's performance is consistent [G × Li × (P-R)]. The means are plotted in Figure 1.

The superior recall of the suburban children on the primacy measure appears clearly in Figure 1 for all series lengths. The recency effect and the significant interaction of SES with scoring and length can also be seen with the differences in the linear component visible, just as suggested by the G × S × Li interaction. The effect is entirely due to the differential response of the inner-city group on the recency measure as series length increases. Jensen's finding is clarified; that suburban children perform at a superior level on the recall of average span length series of four and five items, but inner-city children recall significantly more of the latter (recency) items of longer series. Note the decrease in the recency recall of the suburban sample in series of lengths eight and nine; these children's retention of the most recently presented items actually diminishes as the series become supraspan in length: i.e., increasingly longer than their short-term memory recall capacity.

The average number of primacy and recency pairs recalled is not significantly different in the two groups, 2.81 for the suburban group and 2.64 for the inner-city group. Apparently efficiency of digit recall was not different in the two SES groups, but there were qualitative differences in the position of items chosen for memory and for recall. Figure 2 shows the serial position curves for the recall of adjacent pairs of items in series of length seven, eight, and nine items. While these figures permit comparison

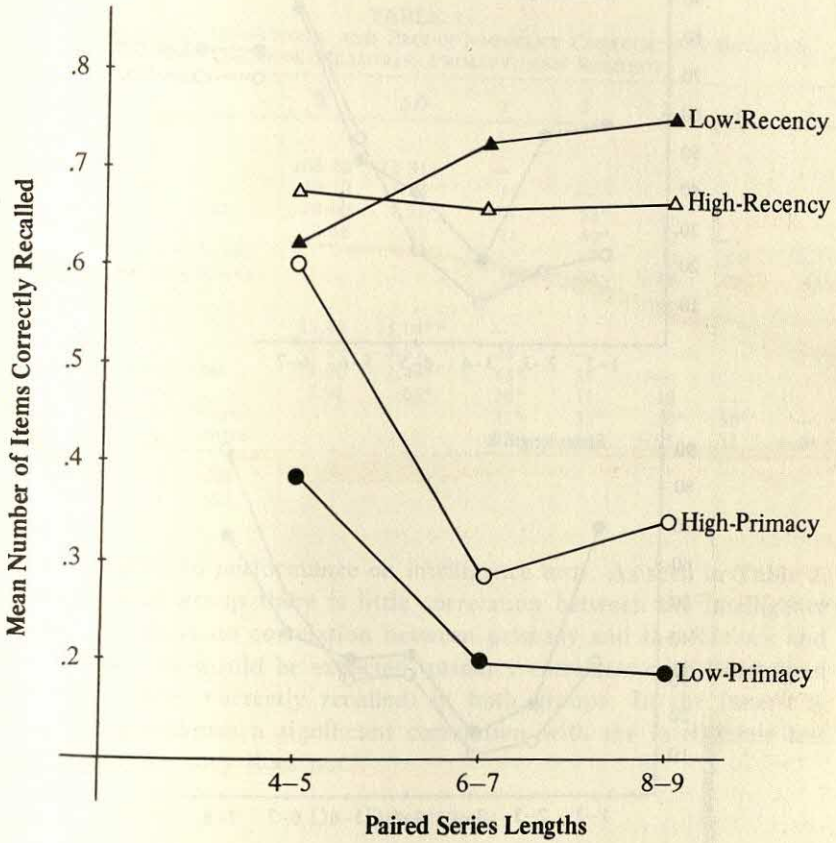

FIGURE 1

PRIMACY AND RECENCY RECALL SCORES FOR HIGH AND LOW SES GROUPS AT EACH SERIES LENGTH

with traditional serial position curves, the data points comprise items belonging to correctly recalled adjacent pairs, produced under a free-recall paradigm. The middle digits included in pairs recalled in series of lengths seven and nine have been included in these figures.

The primacy, recency, span, position, and sequence measures have been factor analyzed by a least squares method (14). There is some support for the SES differences on the position and adjacent sequence recall measures as reported from Jensen's principal components analysis. There are, however, marked SES differences in factors relating to primacy and recency.

One purpose of the study was to consider whether any differences found

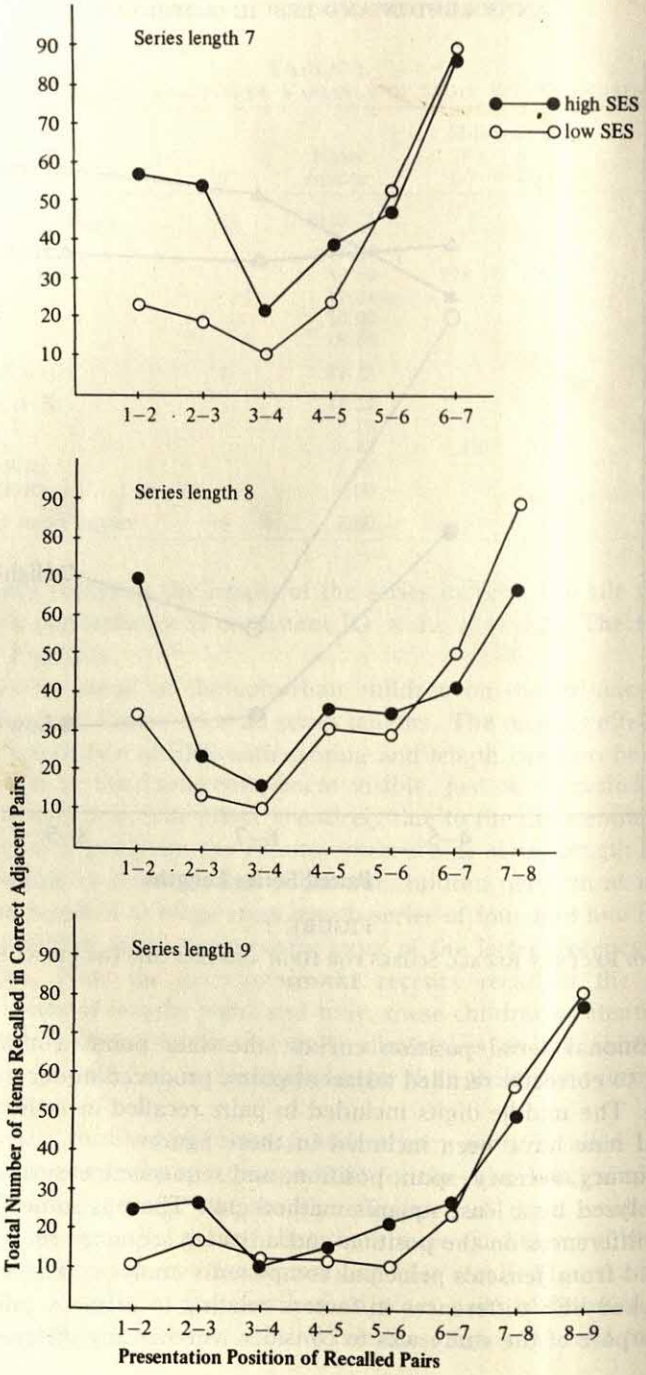

FIGURE 2

SERIAL POSITION CURVES OF THE DIGIT RECALL PATTERNS OF LOW AND HIGH SES GROUPS

TABLE 2
MEANS, STANDARD DEVIATIONS, AND PRODUCT-MOMENT CORRELATIONS BETWEEN INTELLIGENCE MEASURES, PRIMACY, AND REGENCY

Measures	$\bar{X}$	*SD*	1	2	3	4	5
High SES group							
1. Peabody PVT	108.48	12.81	—				
2. Raven's P.M.	19.10	3.55	.18	—			
3. Figure Copying Test	29.00	7.35	.07	.53*	—		
4. Binet Digit Span	4.38	.63	−.11	.40*	.32*	—	
5. Sum of Primacy Scores			.13	.17	.11	.34*	—
6. Sum of Recency Scores			.28*	.04	−.06	.02	.45*
Low SES group							
1. Peabody PVT	93.68	15.04**	—				
2. Raven's P.M.	16.20	3.51	.23	—			
3. Figure Copying Test	24.00	7.44**	.43*	.19	—		
4. Binet Digit Span	3.92	.63*	.36*	.15	.18	—	
5. Sum of Primacy Scores			.31*	.33*	.30*	.50*	—
6. Sum of Recency Scores			.07	−.12	−.05	.17	−.01

* Significant at $p < .05$.
** Significant at $p < .01$.

would be related to performance on intelligence tests. As seen in Table 2, in the suburban group there is little correlation between the intelligence measures. There is no correlation between primacy and the Raven's and Peabody tests. As would be expected, primacy correlates with Binet span (the longest series correctly recalled) in both groups. In the inner-city group, primacy shows a significant correlation with the intelligence test measures, but recency does not.

D. DISCUSSION

There is evidence that Canadian inner-city children, of seven years of age, exhibit a different recall pattern for serially presented digits than suburban children. It was noted above that several current theories of the development of memory propose that rehearsal processes do not emerge until the child reaches nine to 13 years of age. It is possible, perhaps, that the primacy-dominant response pattern indicates the early development of an active rehearsal process, while the recency pattern indicates a non-mediated passive monitoring of items without rehearsal. This seems unlikely, however, since the total capacity of each group, as measured by the sum of recalled primacy plus recency pairs, is not significantly different between groups. If the use of a mediational mechanism, such as primacy rehearsal, is developmentally advantageous, one might expect an increase in total recall, as a function of what Corsini (8) terms "the environmental press."

Instead, we propose that these patterns indicate different memory mediating strategies. For example, children from suburban areas may generally attend to the first and the last parts of a series of presented items, using a strategy in which the initial two or three digits are selected for rehearsal (i.e., repeated several times subvocally), the middle digits are ignored, and the final digits are retained in a "primary memory store" (21).

The recall patterns of inner-city children on the other hand may imply a strategy in which accurate initial item recall is not important. The first few items were picked up, perhaps rehearsed once or twice only, then replaced by the arrival of newer items. When asked to recall, the child produced the most recently presented four or five items, some retrieved from primary memory, the rest from recent rehearsal.

The results indicate that process differences may be identifiable between children from differing SES home backgrounds. The strategies typically exhibited by the two groups may be different and thus tend to sacrifice different types of information (i.e., relational or positional). It would follow that different scoring methods might superficially suggest different memory capacities. The digit span subscale of the Stanford-Binet, for example, will favor the performance of children who preserve accurate positional information in average span length series, rather than that of children who preserve relational information in the recently presented items of longer length series. The correlations, between Binet digit span and primacy in Table 2 may reflect this. A measure which requires accurate primacy retention may favor one style of responding. To characterize this one style as more "intelligent" or efficient would seem to be arbitrary, particularly since similar overall recall performance may be produced on supraspan length series by an alternative strategy. Further, the primacy response pattern is related to intelligence variables in the inner-city group only, while the alternative, recency pattern is related to PPVT in the suburban group (Table 2). One may therefore question the validity of this particular component in the general construct of intelligence. One is also led to ask what the effects might be of such differences in response style for other sequential information processing tasks.

It must be concluded that there is evidence for qualitative differences in recall processes between Canadian children from inner-city and suburban backgrounds. Other investigators have found evidence for differences in cognitive organization. Cole and Bruner (7), for example, propose that SES groups exhibit different information handling strategies when undertaking similar tasks, concluding that while the information-handling capability of

inner-city children differs qualitatively from that of their suburban peers, it may be premature to conclude that it is intellectually deficient. The notion of developmental or environmental deficit is, in Cole and Bruner's terms, a misinterpretation of the evidence for cross-cultural differences.

In the same vein, one must caution against interpreting the results of studies of developmental memory in terms of deficiency in information-handling ability. Corsini (8) suggests that the propensity for a child to use mnemonic routines results from the environmental press: i.e., from the perceived requirements of the specific task. Use or lack of use of a routine does not necessarily reflect the developmental level of a child's competence.

We suggest that application of alternative strategies for the selection and organization of sequentially presented information can explain the quantitatively equivalent but qualitatively different performance of the two groups of children in this study, and that this explanation is more plausible than one of cultural, intellectual, or developmental deficit.

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THE IDENTITY STATUS OF NIGERIAN UNIVERSITY STUDENTS*[1]

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Summary

The concept of identity, developed by Erikson over the last 30 years, has as one of its main features the idea that a sense of identity is acquired by people in all cultures. In the present study the identity status of 106 Nigerian male and female university students was evaluated by means of Simmons' Identity Achievement Scale (I.A.S.).

Findings include a mean I.A.S. score of 13.43 which is close to what Simmons obtained with a sample of American college students. The results also resemble Simmons' both in the lack of significant sex differences in mean I.A.S. scores and in the distribution of I.A.S. scores. The existence of this similarity, in spite of considerable sociocultural differences between Nigeria and United States, supports Erikson's notion of the universality of a sense of identity.

A. Introduction

The concept of identity has been discussed extensively by Erikson with repeated emphasis on the central role of identity in the psychology of adolescence. According to him, identity formation is not only the major task of adolescence but it is also a prerequisite for successful negotiation of young adulthood, the stage of the life cycle succeeding adolescence (1, 2). Several authors, such as Hauser (3) and Marcia (4), have commented upon the difficulty of translating Erikson's ideas into operational terms suitable for research. Recently procedures for studying various aspects of identity

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have been introduced by the last mentioned authors, among others. Simmons Identity Achievement Scale is a notable example (5).

In the present study, the identity status of a group of Nigerian university students is evaluated with Simmons' scale. Another aim of the study is to explore further the psychometric attributes of the I.A.S. in a different sociocultural setting. It should be noted that this is a pilot study. Relatively little is known about the psychology of university students in Nigeria and other African countries; less still is known about the identity issues pertaining to this group. This report is the first of a series to be published by the author on Nigerian university students.

B. Method

The I.A.S. consists of 24 items, each of which is made up of an incomplete sentence followed by two possible completions. *S*s are asked to select the completion that best fits them. Each item is scored dichotomously in accordance with a key provided with the research manual (6). A score of one or zero is obtained on each item, thus yielding minimum and maximum possible scores of zero and 24 respectively.

The I.A.S. is selected for use in this study because it can be administered in a few minutes and because it can be scored objectively. In addition, the various items cover attitudes to religion, occupation, family, interpersonal relations, and the self, all of which are legitimate concerns of Nigerian university students.

Thirty undergraduates attending a class at the University of Ibadan were instructed to complete the I.A.S. Each student also provided three or four undergraduate friends who filled out the I.A.S. A total of 106 *S*s completed the questionnaire.

C. Results

Six of the questionnaires were rejected because several items were not responded to. There thus remained 100 *S*s consisting of 28 females and 72 males with a mean age of 26.74 and a standard deviation of 7.97. The mean age was 26.53 and 26.83 for males and females, respectively. The difference is not significant at the .05 level. The mean I.A.S. score for the entire sample is 13.35 with a standard deviation of 2.87. Means for male and female *S*s are 13.46 and 13.31, respectively. Again, there is no significant sex difference.

Table 1 shows the percentile ranking of I.A.S. scores. The scores range from 8 to 20 corresponding to percentiles of 4 and 99, respectively. Table 2 shows the number of *S*s obtaining a score of one as opposed to zero on each

TABLE 1
PERCENTILE RANKING OF I.A.S. SCORES

Score	Percentile ranking
20	99
19	97
18	95
17	89
16	85
15	80
14	66
13	58
12	43
11	23
10	16
9	12
8	4

TABLE 2
PERFORMANCE OF SUBJECTS ON EACH ITEM

Item No.	No. of *S*s scoring one	Rank of item
9	85	1
14	76	2
13	73	3
8	72	4
3	71	5
23	69	6
21	65	7
22	64	8
5	62	9
19	61	10
15	59	11
12	57	12
20	55	13
2	53	14
10	48	15
4	48	16
6	46	17
16	45	18
7	44	19
24	43	20
17	40	21
18	39	22
11	35	23
1	31	24

item. From the table it is seen that items 9, 14, 13, 8, 3 and 1, 11, 18, 17, 24 are the least discriminatory items.

D. DISCUSSION

The mean I.A.S. score of 13.43 obtained in this study is rather close to that of 12.56 scored by Simmons' American students. The pattern of

distribution of scores is also very similar to what he obtained (6). Thus the percentiles corresponding to the scores 8, 12, 16, and 20 are, respectively, 8, 42, 86, and 99 in Simmons' study, and 4, 43, 85, and 99 in this study. Both samples show no sex differences with regard to mean I.A.S. scores. These findings are remarkable, especially since they were obtained in different cultural settings. The American college student is situated in a sociocultural milieu characterized by a long history of formal education, general acceptance of science for explaining natural phenomena, and a strong sense of individual responsibility. On the other hand the Nigerian university student belongs to an environment in which the extended family holds sway, animistic beliefs are common, and illiteracy is widespread. Furthermore, most Nigerian undergraduates, unlike their American counterparts, constitute the first generation in their families to receive university education. The similarity of I.A.S. scores in spite of the striking cultural difference constitutes evidence in support of the construct validity of the I.A.S.

The five items on which most *S*s obtained a score of one are 9, 14, 13, 8, 3 (Table 2). The corresponding completions chosen by the *S*s are, respectively, "I am not hard to get along with;" "If I had my choice, I would do things as I have;" "For me success would be to be accepted by others;" "When I let myself go, I don't change much from my regular self;" and "For me success would be achievement of a large amount of competence in my chosen career." That two of these completions (the first and the third in the above list) pertain to interpersonal relations can be explained on the basis of the high value set on social acceptance in African cultures. The choice of the other three completions indicates that personal achievement and what Erikson terms a "sense of inner sameness" are not necessarily sacrificed for the need for social acceptance.

The study may be criticized, and justifiably so, on the sampling method. The sample used, while fairly large, is not randomly chosen. Consequently, it cannot be regarded as representative of the student population of the university in question or of Nigerian university students in general.

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DELAY OF GRATIFICATION AND ABSTRACT ABILITY IN THREE SOCIETIES*

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SUMMARY

To test the hypothesis that delay of gratification and abstract ability are correlated, a study of 100 Cree and Euro-Canadian boys aged 8-11 was undertaken with use of projective tests. A related concern tested the possibility that differences in delay ability may be related to cultural requirements in abstract *vs.* concrete orientations to the world rather than to levels of developmental maturity. There was a significant positive correlation between delay of gratification and abstract ability ($p < .01$), and Euro-Canadians delayed significantly more often than the Cree ($p < .01$). However, no significant difference in dependence and control of aggression was found between Cree nondelayers and Euro-Canadian delayers, indicating that high delay ability (at least with respect to food hunger) is not a universal indication of high self-control, but that self-control may be defined differently across cultures.

A. INTRODUCTION

Attempts to explain cross-cultural data on delay of gratification have relied heavily upon Western conceptions of maturation. Populations demonstrating a low ability to delay gratification have been interpreted as being burdened with the absence of father figures (irresolution of Oedipal conflict), low need-achievement, and low *IQ* (6, 7, 8).

A new possibility for cross-cultural analysis of delay behavior is suggested by some recent work by Mischel (10) which demonstrates the importance of a cognitive dimension of abstract thought in delay behavior. This work shows that when young children were provided with abstract slide representations of goal objects, their voluntary delay of gratification was

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enhanced, presumably because the slides enabled them better to keep their goals in mind.

An explanation for variation in delay behavior might be sought in the abstract abilities demonstrated by *S*s. Such a study was conducted by the author among a Euro-Canadian population from Winnipeg and two Cree populations, one from Norway House and the other from Oxford House. Relatively speaking, the Norway House group may be characterized as acculturated Cree, while the Oxford House group may be characterized as traditional Cree. Since it is agreed that the Cree or, more generally, the Algonquian are pragmatic and situationally oriented (2, 3, 12, 13), it was hypothesized that the Cree would not delay gratification as frequently as Euro-Canadians and that delay behavior would correlate with abstract behavior.

B. Method

1. *Subjects*

One hundred boys between the ages of eight and 11 were given a series of projective tests and a delay of gratification test. There were 44 Euro-Canadians, 44 acculturated Cree, and 12 traditional Cree, representing an urban Western culture and acculturated and traditional hunting and gathering cultures, respectively.

The Euro-Canadian boys were selected for study on the basis of an invitation from one of their teachers. All the boys in the third, fourth, and fifth grades who were given permission by their parents and teachers participated in the study (only a few boys were not given permission). There was an equal distribution of *S*s in the three grade levels. The average age was 9.8.

It was desired to keep the acculturated Cree sample size about the same as that of the Euro-Canadian and since there were more than 44 acculturated Cree boys in the third, fourth, and fifth grades, the sample was chosen primarily on the basis of the researcher's personal contact and familiarity with the teachers. There was a relatively equal distribution of *S*s by grade and the average age was 9.8.

The traditional Cree sample was chosen on the basis of the native researcher's familiarity with the *S*s and their happenstance availability at the times the researcher was active; many were his relatives. The sample size was limited by the time available to the researcher. The average age was 9.7. There were five in grade three, five in grade four, and two in grade five.

2. *Materials and Procedure*

Except for the traditional Cree children, all *S*s were tested by the author in private during school hours, with the use of the English language. The traditional Cree children were tested in Cree by a native resident of Oxford House who had been trained by the author. The tests were administered in 1974 and readministered among the Euro-Canadians and the acculturated Cree a year later.

*S*s were taken out of classrooms and tested in a private room at a small table, the researcher and *S* facing each other across the table. The researcher followed a preset outline of sentence completions and thematic apperception tests. These were devised by the author to incorporate familiar cultural material and to eliminate Western biases. The sentence completions were read aloud first and the *S*s replied aloud. Their responses were recorded in longhand. After the sentence completions the *S*s were shown 10 candid snapshots of Cree children and adults. *S*s were asked to "describe what was happening." On occasion *S*s had to be prodded by asking such direct questions as "Why is she crying?" "What is he looking at?" or "What is he thinking?"

After the projective tests were administered, the *S*s were told that the researcher would like to give them a candy bar for their help. They were asked, "Do you want to have one candy bar right now or do you want to wait a week without candy and then have two candy bars?" Those who delayed gratification got their candy bars a week later; those who did not, got a candy bar right away.

The testing took, on an average, about 25 minutes. The *S*s were eager participants, although most of the Cree were shy as a result of their lack of confidence in English and their culturally dictated reticence. The researcher had to listen carefully for spoken answers which were often whispered behind upraised hands. But as they obtained confidence that the researcher understood their accent, they opened up and replied more quickly and freely. The second testing found the *S*s approaching the task more confidently.

Responses were scored blind by the author for the frequency of dependence, aggression control, and abstraction. Dependence (D) was scored according to Kagan's (5) and Murray's (11) systems. D is scored when hero seeks help or sympathy, or when he is disturbed over the loss of a source of love and support. D is also scored when hero is given a gift or help that is not specifically requested. Aggression (A) was scored according to Stone's system (14). A was scored for death concepts, physical aggression, or verbal

aggression. In addition, the object of the aggression was noted as being either a person, animal, self, or inanimate object. If aggression was displaced onto self, an animal, or an inanimate object, it was scored as "controlled." Abstract ability was scored as present whenever the *S*, without prompting, attributed a cause to behavior or whenever he attributed behavior to the hero which was not readily apparent from the snapshots or tied directly to sentence completion context. Reliability checks by independent judges each scoring for a different personality variable showed 90% agreement with the author's scores.

C. Results

At the first testing, 23 of 44 Euro-Canadians elected to delay gratification, 18 of 44 acculturated Cree, but only one of 12 traditional Cree ($\chi^2 = 11, p < .01$). It was also found that abstraction correlated with delay of gratification ability ($\chi^2 = 9.1, p < .01$). Among Euro-Canadians, 31 *S*s were above the overall average on frequency of abstraction and, of these, 20 delayed gratification. There were 13 below the overall average on frequency of abstraction and of these, only three delayed gratification. Among the acculturated Cree, 10 *S*s were above the overall average on frequency of abstraction and of these, five delayed gratification. There were 34 below the overall average on frequency of abstraction and of these, only 13 delayed gratification. Among the traditional Cree, only one *S* was above the average in abstraction and he did not delay, while one of 11 *S*s below average on abstraction delayed. When all the *S*s are taken together, 25 of 42 who delayed were above average on abstraction as compared to 17 of 58 who did not delay.

At the second testing, 37 of 44 Euro-Canadians delayed as compared to 18 of 40 acculturated Cree ($\chi^2 = 14.2, p < .0001$). Twenty-nine of the 31 Euro-Canadians who were above the overall average on frequency of abstraction delayed gratification, compared to five of the 13 who were below average. Among the acculturated Cree at the second testing, two of 12 above average on abstraction delayed gratification compared to eight of 23 who were below average ($\chi^2 = 10.3, p < .01$).

D. Discussion

In both testing periods Euro-Canadians were able to delay gratification significantly more often than the Cree, and there was a significant positive relation between delay behavior and abstract ability. How are we to interpret these findings? The literature, with its developmental emphasis

(9, p. 399; 10, p. 228), would suggest that there is a retarded development of both abstract ability and delay of gratification among the Cree *S*s and that this might be due to Oedipal problems, low *IQ*, inappropriate models, or bad life history experiences.

Such interpretations, it is felt, fail to do justice to the flexibility of cultural phenomena. It seems to us that self-control should be viewed in a much more culturally relative way. The extreme variation displayed by same age children in different cultures toward delay behavior seems difficult to explain if innate tendencies toward delay and abstraction are the same in all the *S*s. Rather than a developmental interpretation of delay of gratification and abstract ability, in which children are viewed as starting at low abstract and delay ability and developing toward high abstract and delay ability at a pace dependent on *IQ*, models, and history of reward and punishment, we propose to view delay and abstract ability as a polar continuum with no particular innate developmental direction except that which is provided by cultural conditioning and individual learning experiences.

We see the continuum going from concrete-noncausal behavior at one end to abstract-causal behavior at the other. We view the child as starting out neutral with no innate direction and being propelled one way or the other according to cultural definitions of maturity.

Evidence for this model comes from observing the relationship between delay and abstract behavior and control of aggression (a standard measure of maturity and self-control). We find a significant difference between Euro-Canadian *S*s and Cree *S*s in the extent to which delay and abstraction covary with aggression control. A positive correlation between delay of gratification and control of aggression is found in 21 of 36 Euro-Canadian *S*s but only 14 of 46 Cree *S*s ($\chi^2 = 2.4$, $p < .10$). This result occurs, we believe, because of the difference between Cree and Euro-Canadian definitions of self-control and maturity. The definition of maturity in both societies includes the concepts of control of aggression and independence, but whereas the Cree include concrete-situational orientation and the relatively immediate consumption and sharing of resources in their definition, Westerners include abstraction and delay-of-gratification in theirs. It would appear then that the positive factor of differing definitions of maturity and differing role expectations in the two communities rather than the negative factor of weak ego strength or retarded development accounts for the differences in amount of delay behavior and the correlation of that behavior with aggression control that are found in the various communities (1, 3,

TABLE 1
CONTROL OF AGGRESSION AND DEPENDENCE AMONG CREE WHO DID NOT DELAY GRATIFICATION AND EURO-CANADIANS WHO DID DELAY GRATIFICATION

Society	Dependence		Control of aggression	
	Hi	Low	Present	Absent
Cree	16	20	18	8
Euro-Canadian	13	10	15	2

4, 12). That it is not a matter of weak ego strength and retardation is seen in Table 1 which demonstrates that there was a relatively equal ability of nondelayers among the Cree and delayers among Euro-Canadians to control aggression ($\chi^2 = 1.2$) and be independent ($\chi^2 = .8$).

Further evidence that the differences are attributable to differing conceptions of self-control, rather than weak *vs.* strong self-control, is seen in the changes of delay behavior that occurred at the second testing. In the second testing period, 33% of the *S*s in each society changed their delay behavior. However, the Euro-Canadians all changed from nondelay to delay behavior, while among the acculturated Cree the shift was equally towards delay as towards nondelay. Explaining this difference is difficult without including a concept of powerful cultural forces at work leading *S*s toward differing delay behavior. Certainly there was more trust the second time, and this might account for the changes that went from nondelay to delay. But explaining the behavior of the acculturated Cree *S*s who changed from delay (in spite of mistrust the first time) to nondelay (in spite of trust the second time and, as their test scores show, high abstract ability) seems to require a concept of a strong cultural tradition toward nondelay behavior which the *S*s did not respond to the first time perhaps because of the researcher's Western and conflicting role model and the fear he engendered.

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ZAMBIAN STUDENT ATTITUDES TOWARD OTHERS, BASED ON TRIBE, CLASS, AND RURAL-URBAN DWELLING*[1]

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SUMMARY

The effects of tribe, social class, and place of dwelling on social distance, and of tribe on ethnic prejudice were investigated in a sample of almost 200 first-year men and women university students in Zambia. Social class was of primary importance as a dimension underlying social distance preferences. Tribe also emerged as a factor, affecting social distance preferences in a way congruent with the measured ethnic prejudices. While relative levels of liking for different Zambian ethnic groups were in many respects similar to those found in another study 18 years before, there were also several striking changes. The residence dimension affected interpersonal attitudes very little.

A. INTRODUCTION

While tribe is clearly an important factor in determining interpersonal attitudes and behavior in sub-Saharan Africa, emergent socioeconomic classes and differences in standards and styles of life between urban and rural dwellers are two other determinants which may be growing in importance. It has been found that in various parts of the world a variety of dimensions seem to constitute the basis for social distance and the formation of prejudices (8, 9, 10). Hence it is of some interest to compare the relative strengths of the factors mentioned above as determinants of attitudes to other people, particularly among highly educated persons, since education is usually associated with lower levels of prejudice and hostility

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[1] Requests for reprints may be sent to either author at the addresses shown at the end of this article. (Dr. Bethlehem at Leeds or Dr. Kinglsey at Zambia). A fuller version of this paper is available from the second author.

to other ethnic groups (e.g., 6, 11). If a high level of tribal prejudice is found, it may be that tribalism is less easily eradicated than might be hoped.

Mitchell (4, 5) found that about 18 years ago, the determinants of intertribal social distance among educated young men in Zambia (then Northern Rhodesia) were geographical proximity, cultural similarity, and stereotypes and the historical reputations of various tribal groups. The present study sought in part to find out whether these factors are still important in determining intertribal social distance, and whether there is a positive relation between the social distances between the various tribes found by Mitchell 18 or so years ago, and the social distances expressed by a comparable sample now, and whether there has been a shift in the overall popularity of the various tribes.

B. Method

1. *Subjects*

The *S*s for the main part of this study were 191 University of Zambia students, men and women. They were recruited by advertising for volunteers and also by testing intact classes during tutorial and practical periods. Foreign students' test forms were eliminated from the present sample. The majority were first-year University students although the sample did include some second- and third-year students as well.

The *S*s were classified into nine broad ethnic groupings by both the language they gave as their first language and the specific group with which they identified themselves. (This information had been collected in another context). These groupings were Bemba ($N = 60$), Tonga ($N = 37$), Tumbuka ($N = 25$), Luvale ($N = 5$), Chewa ($N = 20$), Asian ($N = 13$), Lozi ($N = 22$), Ngoni ($N = 9$), and Bisa ($N = 2$; because of the small N the Bisa group was excluded from the analysis).

2. *Materials and Procedure*

Part A: Materials for part A consisted of 28 color photographic slides projected one-by-one on a screen, and a response booklet for each *S*. *S*s were tested in groups of varying sizes. Each slide depicted a different Zambian man in a natural pose against a local background. Fourteen models were wearing suits and ties or medics' smocks, carrying or reading newspapers, wearing watches, carrying car keys, or otherwise displaying symbols of affluence and education. These "upper class" models were

photographed against backgrounds of office buildings, motorcars, etc. The other 14 were wearing clothing which identified them as laborers or unemployed, unaffluent, and not highly educated, probable residents of rural or squatter areas. These "lower class" models were photographed riding bicycles or standing near trees and bush.

The response booklets contained a cover page giving printed instructions and an example, and providing spaces for *S*s to enter their name and sex. There followed 28 pages, each containing the following social distance scale with spaces to answer "Yes" or "No": (*a*) I would be pleased if my sister married the man in the picture; (*b*) I would be pleased if the man in the picture came to live in my village or became my neighbor; (*c*) I would like to be a friend of the man in the picture; (*d*) I would like to work in the same office with the man in the picture; (*e*) I would be pleased if the man in the picture were to visit my home.

Immediately upon projection of each slide, a statement was read out giving two items of (probably fictitious) information about the man in picture: his ethnic group and whether he was resident in a rural area or in a city. Thus, *S*s might be told in regard to one slide: "This is a *Chewa* man and he lives and works in *Chipata*." For urban residence, Lusaka (Zambia's capital city) was used in every case, while the names of appropriate tribal areas were used for rural residence.

Thus there were three variables under experimental manipulation, and each of the 28 slides represented one of the possible combinations of these variables; i.e., each slide represented one of the seven ethnic groups, one of the two residence types, and one of the two social class levels. Ten different random orders of the 28 slides were compiled, and the associations of ethnic group and residence with particular slides were varied randomly across these 10 lists, as were the orders of ethnic groups, residences, and social classes within lists (except that there was a constant association between specific models and social class).

Part B: Material for part B, which always followed part A, was a response booklet for each *S*, containing an identical 43-item adjective checklist for each of seven target ethnic groups: Bemba, Bisa, Chewa, Ngoni, Lozi, Luvale, and Tonga. These groups were selected for several reasons: they include four major Zambian ethnic groups; they represent the various geographical regions of Zambia well; they include representatives from six of the categories used by Mitchell (4); and each of the seven tribes of the present study also appeared in the Mitchell study, thus making comparisons possible. Scale values of "likableness" of the 43 adjectives

were taken from a previous study of 200 adjectives (3) rated by University of Zambia students from 0 (low likableness) to 6. Most *S*s finished part B within 15 minutes.

C. Results

1. *Part A—Social Distance*

In the social distance scale, it was desired to arrive at a single score for each *S* on each of the 28 stimulus pictures summarizing the degree of social distance he expressed in regard to the particular combination of man, ethnic group, residence, and social class represented by the photograph. However, each of the 28 scales was composed of five statements, and when a frequency count of "Yes" responses to the statements was made across all *S*s on all scales it was found that the five statements did not rank themselves in the expected order from most to least frequently agreed with. That is, *S*s did not display an increasing willingness to agree with Statements 1 through 5 as expected, but rather they agreed most willingly with Statement 3 (according to the frequency counts of "Yes" responses). Statement 5 was next in frequency of "Yes" responses followed by Statements 2, 4, and 1. There was very little difference in frequencies of "Yes" responses to Statements 3, 5, and 2, and their mean frequency was about 1.2 times that of Statement 4, and 3.5 times that of Statement 1. In order to take into account this resulting ranking of the statements in frequencies of agreements (and thus in apparent levels of social distance connoted for the *S*s for this study), as well as the size of the scale intervals between statements (based also on frequencies of agreements), scores were weighted according to the frequency of "No" responses to each question. Since items 3, 5, and 2 were so close, only one was used in the final scale—viz., statement 3, which was chosen as marginally more different in frequency of "No" from statement 4 than were statements 2 and 5.

A three-point scale thus resulted, each point having a weighted value proportional to the frequency of "No" responses for that point; therefore a "Yes" to item 1 received a score of 8, a "Yes" to item 4 received a score of 5, and a "Yes" to item 3 received a score of 4. These were summed to give a social distance score for each *S* on each of his 28 scales.

The validity of the social distance scale was tested by reading to 20 additional Zambian students descriptions of two men and asking them to respond to the descriptions on the social distance scale. One description was of a (fictitious) white Afrikaans farmer, who was described in part as

being 48 years old, opposed to Zambian independence, and planning to return to South Africa. The other description was of a (fictitious) young Zambian with a university degree and a good job, whose ambition was to start his own firm. Nineteen of the 20 students responded more favorably to the second, which, even by a coarse sign test, is very highly significant indeed ($z > 4$). Thus responses on the scale are sensitive to experimental manipulation in the expected ways, and its validity as a measure of social distance is demonstrated.

Separate four-way analyses of variance were performed for the social distance data for each of the eight groupings of *S*s. These analyses separate out effects due to stimulus model's tribe, residence (rural/urban), and stimulus model's, and individual differences among *S*s, as well as the interactions among these factors. It is clear that the overwhelmingly important factor in determining social distance among Zambian students was class. For all *S* groupings but one this factor was very highly significant. Moreover this factor accounted for 50% or more of the total variance in all groupings but two, and for all but two groupings it accounted for at least twice as much variance as any other factor. [Percentage of the variance accounted for was calculated by reference to the table presented by Friedman (2).]

Tribe was a less important factor, but was significant in five of the groupings; it accounted for only 25% or less of the variance in all cases. As one might expect, for the Asians, tribe was not a significant factor. In two cases rural/urban dwelling was a significant factor, in favor of rural dwellers. There were also two cases of significant Tribe × Class interactions (see Discussion below), and one case of a signifiant Tribe × Rural/Urban × Class interaction.

2. *Part B—Likableness Data*

For each of the eight groupings of *S*s a separate two-way analysis of variance was carried out on mean likableness values per *S* (mean value of the adjectives ticked by an *S*) for each of the seven target tribes. The results appear in Table 1 where it is evident that *S*s did clearly evaluate other people relatively well or poorly depending on the other person's tribal group. Only for the Luvale and the Bemba (among the African groups) was the difference not significant. While the absence of significance for the Luvale might be due to small *N*, the Bemba has the largest *N* of any group, and some confidence can thus be placed in this negative result.

A comparison between the mean judgment for the tribe to which the *S*s

TABLE 1
LIKABLENESS DATA: SIGNIFICANCE LEVELS OF F RATIOS BETWEEN TARGET TRIBES AND BETWEEN SUBJECTS FOR EACH SUBJECT GROUPING

Subject groupings	Between target tribes	Between subjects
Bemba	NS	NS
Lozi	$p << .001$	NS
Luvale	NS	NS
Chewa	$p < .001$	$p < .05$
Ngoni	$p < .001$	NS
Tonga	$p << .001$	$p < .01$
Tumbuka	$p < .001$	$p < .05$
Asians	NS	$p < .05$

belonged, and the mean of all the other tribes judged, showed that the difference is significantly in favor of his own tribe ($t = 4.84$; $df = 6$; $p < .01$, two tail).

In order to determine whether there were differences in the average likableness scores attributed to the various target groups and also whether there were differences in the average level of esteem in which the S groupings held targets in general, a two-way analysis of variance was performed. The data were the mean scores for each target group assigned by each of the S groupings. There was no significant effect due to different S groups ($F < 1$), indicating that the different groupings of Ss did not differ among themselves in the average level of likableness they assigned to targets in general. But there was a highly significant effect due to different *target* groups ($F = 8.771$, $df = 6$ and 42, $p < .001$); moreover differences in likableness of different target groups accounted for more than half of the total variance in likableness judgments [$\eta = .75$, calculated by reference to the table presented by Friedman (2)]. The rank order of average likableness of the target groups is referred to more fully below.

3. *Other Results*

The similarity between the social distance and the likableness data of the present study is striking: the relationship is perfect except for ties. The ties reduce τ to + .951 ($p < .002$).

Some salient features of these results are the low rank of the Bemba, and the reversal of rank between Chewa and Ngoni, and Bemba and Bisa, in the present study as compared to Mitchell's study: the militarily illustrious Bemba and Ngoni are now ranked below the Bisa and Chewa. Inspection shows that there is close agreement between the social distance expressed and the mean likableness value assigned to target groups on the one hand and the cultural/geographical distance between S group and target group,

as assessed by Mitchell (4), on the other. A correlation of the average social distance rankings for the target groups, as ordered by the *S*s of the present study with the estimated cultural/geographical distance ordering of these groups by Mitchell, is significant ($\tau = .733$, $p < .028$, one tail).

Finally, there was no suggestion of a difference in attitude towards Zambians in general between Asians and Africans. Asians do not differentiate between tribes either on likableness or on the social distance scale.

D. Discussion

Neither Mitchell (4), an anthropologist who had worked in the area for a long while, nor Brewer (1), nor the present authors, were able successfully to rank social distance items *a priori*, illustrating the difficulties of cross-cultural work. Mitchell found his item dealing with close kinship by marriage was the most intimate item, as it was in the present sample and in Brewer's, reflecting the generality across cultures of items dealing with kinship. In the present sample, the item dealing with "working with" is ranked more intimate than "live in my village or become my neighbor," a reversal of the order of similar items in Mitchell's study. This difference probably reflects the diminishing importance of tribal areas and neighbors as educated Zambians adopt an increasingly Western style of living: they may seldom actually go to their tribal area, and, as in any Western city, they may not have more than a nodding acquaintance with their neighbors.

The social distance items finally used in this study correspond closely to the "Social distance" factor in Triandis's (7) "Behavior Differential": Triandis found the variance on this factor to be affected more by the target's race than by his beliefs. Since, however, the Behavior Differential was based on a content analysis of *American* literature, and since imperfectly acculturated researchers have difficulty in ranking behaviors for degree of intimacy, the Behavior Differential may not be cross-culturally valid, and was not used.

Both tribe and class thus exerted appreciable influences on the social judgments of Zambian university students. Social class emerged as clearly the most powerful factor in determining social distance for these students; it accounted for more than half the total variance in social distance judgments in most cases. That class is an important determinant of social distance is not surprising in view of the obvious importance which people here (as elsewhere) attach to wealth and status, particularly such upwardly mobile people as Zambian students. However, the extent to which it dwarfs tribe as a factor in social distance is unexpected, tribe accounting for less than 25% of the total variance on the average.

It does seem clear, then, that development and particularly higher levels of education are bringing class feelings to the fore in Zambia, but it also seems clear that tribal feelings still exert an influence, even for educated people, as well. Even when pitched against class in the social distance analyses, tribal feeling accounted for a significant amount of the variance in most *S* groupings, and in the analyses of the data relating to ethnic prejudice (the likableness data), into which class and rural/urban dwelling did not enter, tribe accounted for more than half of the variance. This conclusion is further supported by the finding that members of each tribe regarded other members of their own tribe more favorably than members of other tribes, and expressed least social distance towards members of the tribal group.

Two interactions between tribe and class were referred to in the Results section above. Graphical analysis of these interactions indicates that where both tribe and class were independently reacted to favorably, a combination of these two factors in a single target person exerted a particularly potent effect in reducing social distance to that target person.

In regard to the third social stimulus variable investigated here—i.e., whether a target person lives in a large city or in a rural area—few effects of this factor were seen in the social distance preferences of the students. For only two of the *S* groupings was this factor of any importance at all, and in these cases the average preference was, surprisingly enough, not in favor of urban residents but rather in favor of the rural dweller. In light of what can informally be observed of Zambian student attitudes, this finding was not expected and remains something of a puzzle.

An interesting, although not unexpected, finding of this study is that the Asian *S*s did not discriminate among the African ethnic groups on either measure of interpersonal attitudes. That is, in their likableness and social distance ratings of the various target ethnic groups they showed no marked preferences for one or the other of the groups—a finding which cannot be attributed to abject ignorance of the different tribes, since almost all Asian students were born and brought up in Zambia. Perhaps a more surprising finding is that the Asians' likableness ratings of the targets in general were not any lower than those made by the African *S*s; that is, there is no evidence here of prejudice by Asian students against Zambian Africans.

There are a number of comments that can be made regarding relationships between the present findings and those of Mitchell in his similar earlier study. In general Mitchell's discussion of cultural/geographical distance between tribes, with his emphasis on the importance of this composite factor as a determinant of social distance and prejudice, seems to bear

considerable validity today, as it did 18 years ago. This is a happy confirmation by formal statistical means of the insight of a social anthropologist, and an illustration of the fundamental and lasting nature of this determinant of social distance.

However, the other factor in social distance suggested by Mitchell—namely, widely established stereotypes based partly on reputations from precolonial times—seems to have changed considerably in the intervening years. Thus, while seven out of Mitchell's eight S groups (i.e., all of his S groups which have a counterpart in the present study) expressed a lower social distance to the Ngoni, a group with a history of military success, than to the geographically proximal Chewa, 18 years ago ($p = .07$), only two out of these seven S groupings did so in the present study. The Ngoni remain in the second position in the overall rankings on social distance, the position they held in Mitchell's study. But the Chewa have moved from the third position to the first. Again, in Mitchell's investigations the Bemba, who also had a reputation for military prowess, were consistently more highly regarded than the closely related Bisa (for all eight of his S groups—a highly significant result, $p < .004$); however, in the present study only the Bemba themselves and the Tumbuka expressed less social distance to the Bemba than to the Bisa. The Bemba, indeed, have dropped dramatically in the esteem of other Zambians as seen in the overall rankings on social distance and likableness. Whereas they were the most acceptable on average to members of other tribal groups 18 years ago, they now rank last of the seven target groups.

Thus in 18 years since Mitchell's investigation the Bemba appear to have become relatively much less popular, while the Chewa have gained somewhat in popularity. The reasons for these changes are probably to be found in politico-historical developments in the last 18 years—a period which has seen the achievement of Zambian independence. At the time of Mitchell's study, the Bemba were the largest homogeneous tribe having a centralized political organization, and the memory of the military prowess of the Bemba and the Ngoni was perhaps still fresh. Since Zambia gained independence, there has been feeling against the alleged sectionalism of the Bemba, and jealousy at their assumed success in obtained political and governmental positions. The political events of the present have eclipsed military prowess of the past. The Chewa and the Ngoni, who are the most popular on the social distance measure today, are large tribes against whom there have been no widespread accusations of sectionalism or disloyalty to the prevailing political orthodoxy. Political circumstances may also account for the lack of popularity of Tonga and Lozi, in whose areas

opposition political parties have flourished. On the other hand, the Luvale and the Bisa are relatively small tribes, and the Luvale people may still be victims of the unfavorable reputation referred to by Mitchell (4, p. 27).

Finally, it is interesting to note that the Bemba *S*s, while discriminating among other tribal groups on the social distance scale, did not do so on the measure of prejudice. When one considers that the Bemba *S*s, in addition to not discriminating among members of other tribes on the measure of prejudice, also did not differ from the other groups in the general level of esteem they expressed for outgroup members, and did not rate themselves as possessing more favorable attributes than others, one cannot help but feel that they may be the victims of a newly prevailing false stereotype.

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THE VALIDATION OF DISSONANCE *VERSUS* IMPRESSION-MANAGEMENT THEORIES*[1,2]

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SUMMARY

Three experiments were designed to determine whether dissonance theory or impression-management theory provides a more adequate explanation of attitude change within the confines of the "counterattitudinal advocacy" experimental paradigm. The designs employed were a simple manipulation in the laboratory, a more complex laboratory design, and a field experiment closely replicating other designs which had successfully produced attitude change using counterattitudinal advocacy.

The results indicated no significant attitude change in any of the experimental attempts. It was concluded that both dissonance and impression management theory may be too broadly defined, in view of the variety of phenomena they attempt to explain.

A. INTRODUCTION

Tedeschi, Schlenker, and Bonoma (5) have proposed that dissonance phenomena can best be explained in terms of one individual's attempt to appear consistent in the eyes of another person. Their theory, called impression-management theory, attempts to integrate the findings of a large number of dissonance experiments. It also relates dissonance phenomena to the social influence process, since managing the impression of consistency is directed by the actor's expectations of gains and avoidance of costs in relation to another person. The theory does not require postulates of intrapsychic tensions and needs for consistency common in dissonance

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[1] Experiment 1 of this paper describes the senior author's M.S. thesis submitted to the Department of Psychology, Colorado State University, 1973.

[2] Reprints may be obtained from the second author at the address shown at the end of this article.

theory. Tedeschi *et al.* suggest that much of the attitude change recorded in dissonance experiments is superficial and is only an attempt on the part of a respondent to deceive the *E* into thinking the respondent is behaving consistently.

Impression-management theory states that:

> Behaviors intended to restore impressions of consistency will be emitted only when the individual believes the observer has perceived two actions as tacted and, further, as contradictory in their attributional implications (5, p. 690).

By "tacted" behavior, the authors mean behaviors attributable to sources within the individual.

The studies reported in this paper are an effort to distinguish dissonance from impression-management phenomena. A dissonance study posing some problems for impression-management theory is that of Linder, Cooper, and Jones (4). In one of the experimental conditions of their research, they found a dissonance effect after the respondents completed the task which was to write an essay counter to an attitude he was known to hold. This procedure has been commonly used in attitude change studies, but usually when the essay is finished it has been given to the same *E* who presented the task in the first place. Change produced with this procedure can easily be explained by impression-management theory. In the Linder *et al.* study, however, the essays were given to another *E*, and the change due to minimal reward predicted by dissonance theory still occurred. The attitude change is difficult to explain with impression-management theory because the two contradictory acts were not viewed by the same observer, and the only available explanation for the results with the use of the theory is that the respondents thought that the two *E*s might compare their impressions of the respondents later on.

In an attempt to pit dissonance theory and impression-management theory against each other, but still avoid any assumptions concerning the respondents' belief about the *E*'s comparing results, the present research employed a different design from the Linder *et al.* study. It varied experimentally the respondent's belief concerning the *E*'s perception of the consistency of the respondent's behavior. Three experiments were designed. In each experiment one group of respondents perceived their own behavior as tacted and contradictory (necessary conditions of impression-management theory), and they believed the *E* had similar perceptions. This group was called the "*E*-knows" group. Another group of respondents perceived their behavior as tacted and contradictory, but believed the *E* was unaware of the contradiction. It was called the *E*-doesn't-know" group. Both of these

groups' results were compared with a control group which did not perform behaviors contradictory with their own beliefs.

If significant attitude change toward the contradictory essay could be obtained in the *E*-knows group but not in the *E*-doesn't-know group, impression-management theory would be supported. If significant pro-essay changes are found in both experimental groups, but not in the control group, dissonance theory is supported and there seems little need for impression-management theory. Other combinations of changes do not contribute to an understanding of the distinction between dissonance and impression-management theory. Nonresults might be expected with some of the manipulations, however, because of the difficulty that Collins, Ashmore, Hornbeck, and Whitney (3) report in replicating the dissonance phenomena.

B. Method and Results

1. *Experiment 1*

Thirty-six males and 36 females were preselected from students enrolled in an introductory psychology course at Colorado State University. Three hundred and fifty students were given a questionnaire including a number of contents and scale forms by their instructor. One item concerned the respondents' candidate preference for the 1972 presidential election. The item contained a 31-point scale from "Strong for Nixon" through "Undecided" to "Strong for McGovern," and the respondents made a check on it in response to the statement "My preference for president is . . . ." The respondents did not perceive the questionnaire as other than a part of a class experience.

The respondents were selected according to their responses to the item on candidate preference. Six males and six females were assigned to blocks representing scale positions five points apart across the scale, then the respondents were called and asked to participate in an experiment which was an obligation of their course. No connection was made between the questionnaire given three weeks earlier and the experiment.

The respondents were randomly assigned to treatments within blocks. The design allowed a test of sex and candidate effects, as well as between the three treatment and control groups.

The data were collected by testing each candidate's group for a single treatment at one time. All the groups were completed in three days, approximately one and a half weeks before the election.

Control group respondents were simply asked to write an essay on "Why I came to Colorado State University." At the end of the writing time the respondents were instructed to fold their essays and to keep them. They were then asked to complete the posttest questionnaire which included only the same critical item on candidate preference used to select them. The responses were collected, and then the respondents filled out the validation questionnaire to determine if they thought the *E* could have known their candidate preference prior to the experiment. A detailed debriefing was held and all deceptions revealed before they were dismissed.

Respondents in the *E*-knows group were asked to write the name of the candidate they did not prefer on a piece of paper, and then to write their own name underneath. They were then requested to write a strong, creative, and thoughtful essay on why the candidate they did not prefer should be elected. They were offered a small reward to do this, but they were told that participating in the experiment was voluntary. In this way the minimal justification and voluntary act aspects of dissonance theory were maintained. The respondents were given a set of factual materials on the candidate to help them with the content of their essays. Twenty minutes were allowed for the essays.

The essays were collected by the *E*. All the other procedures were the same as for the control group, except that the respondents were paid before they left.

Instructions to the *E*-doesn't-know group were similar to those given the *E*-knows group except that the respondents were told that it was important that they not reveal their presidential preference, and they were not asked to state their preference on the essays. The *E* assigned the candidate to write about, which was, of course, the one they did not prefer, but the respondents thought the candidates had been randomly assigned to them. The respondents were also told that their essays would remain anonymous. After everyone was finished writing, all the unsigned essays were placed in a large envelope which was then sealed. The respondents were then given the dependent variable and validity questionnaire, were debriefed, paid, and dismissed.

The results of Experiment 1 showed that only three respondents in the control and the *E*-doesn't-know conditions had been suspicious that the *E* knew their candidate preferences before the experiment, but none of the suspicions was strong. All the respondents agreed to write the essays.

An analysis of variance revealed no significant differences between the three treatment groups (means for *E*-know, *E*-doesn't know, and control

groups were 8.54, 8.02, and 7.21, respectively), or between the sexes or candidates. There was an effect due to blocks, which simply means that the preassignment of respondents by degree of candidate preference was reflected in the dependent variable measure.

The disappointing results led to a consideration of a more complicated means of distinguishing between dissonance and impression-management theory. A study by Collins and Hoyt (2), published soon after the data collection for Experiment 1 had been completed, shed some light on the results thus far obtained. They had used a method very similar to that of Experiment 1; however, they manipulated the respondents' perceptions of the consequences of their essays, and their responsibility regarding the essay writing. They also manipulated differences in the amount of financial inducement used. They found that counterattitudinal essay writing resulted in attitude change only when the respondents believed their actions would have high consequences for which they felt personally responsible and they received low financial inducement. Since Experiment 1 had utilized only low monetary inducement and voluntary participation to arouse dissonance, it was felt that the absence of the first two of the above factors may have accounted for the failure to find attitude change.

A second possible reason for the failure to obtain attitude change with the design of Experiment 1 could have been that the respondents may have felt no need for impression-management because of the type of interaction they had with the *E*. The manner of collecting data allowed only minimal dyadic interaction, and it may have been less than the amount required before a respondent is made to feel the need to emit face-saving behaviors and establish future credibility.

A second experiment was designed in which the above factors were better controlled. The conditions for dissonance arousal found by Collins and Hoyt were experimentally manipulated, and the data were collected from each respondent individually with a greater interaction with each of them. The control group wrote no essay at all because other studies using the counterattitudinal attitudes change method had followed that procedure.

2. *Experiment 2*

Thirty males and 30 females were preselected in a manner similar to that used in Experiment 1. A set of scales was again administered to several large classes of introductory psychology students. One item asked, "How justified do you think an employer would be in hiring a man with a family

instead of a woman whose husband has a job when both applicants are equally qualified?" The respondents were selected on the basis of their scale positions on this pretest item.

As the control-group respondents came to the experiment several weeks after the pretest, they were given the posttest questionnaire and asked to fill it out. The questionnaire contained four items concerning the essay topic, including an exact replica of the critical pretest item. They were then debriefed and dismissed.

Respondents in the *E*-knows group were told that a large national institute for research on social behavior was conducting a nationwide survey to determine the effect of the Women's Liberation Movement. They were asked to answer a question concerning giving consideration to a man with a family in job-seeking. The opportunity to withdraw from the experiment without negative reaction was clearly discussed. The respondents were then asked to sign a statement saying they would defend a particular position, always opposite their own, and acknowledging their understanding of the task and its consequences, the receipt of 50¢ payment, and their responsibility in writing the essay. The statement and the instructions included all of the conditions Collins and Hoyt had found led to a dissonance effect with the use of a counterattitudinal essay task. The respondents were paid 50¢ and then asked to write the essay. After the essays were collected, the *E* asked them to answer a questionnaire expressing their real opinions on the issue and then to staple it to the essay.

The respondents in the *E*-doesn't-know group received similar instructions to those of the *E*-knows group except they were cautioned not to indicate their personal opinions on the issue. In addition, the posttest instructions stated that they were not to put their name on the essay and to seal it in an envelope which was furnished. All respondents were debriefed and paid before they left the experiment.

The results of Experiment 2 were similar to those of Experiment 1. There were no significant effects due to treatments (means for the *E*-knows, *E*-doesn't-know, and control groups were 1.65, 1.15, and 2.85, respectively) or sex. A significant blocks effect simply indicated that the respondents held their positions on the measure from the pretest to the posttest.

With the failure of the second experiment also to distinguish between dissonance and impression-management theory with the use of the counterattitudinal task, it was decided to focus on a potential campus controversy in a field experiment to make the experiment more real. One of the

dissonance experiments using counterattitudinal essay writing which had produced significant results had used such an approach (1). Experiment 3 replicated as closely as possible the conditions of Collins and Hoyt in a field study using a topic that had potential immediate implications for the respondents.

3. *Experiment 3*

Nine *E*s were used to collect data. All were undergraduate students enrolled in a social psychology course taught by the junior author, and they had elected to participate in the experiment for a portion of their course credit. The data of only seven of the *E*s were used in the analysis because two of them were unable to complete their tasks. Each *E* collected data from two male and two female respondents in each of two experimental groups and the control group.

A departure from the method of Experiments 1 and 2 was that the respondents were not selected on the basis of pretest results. Instead, a possible policy decision concerning dormitory life was stated to them which was presumed to be uniformly noxious to the respondents who were all dormitory residents. They were asked to consider a supposed decision by University officials abolishing coeducational dormitories and establishing strict visiting hours. Of course, there was little support for such a proposed policy, but it was a believable, arousing issue.

The respondents were selected randomly and each person answered his questions individually. The student *E*s knocked on apartment doors and said they were from a "Committee for Student Input," and they asked if the respondent could take a few minutes to answer some questions about a new rumored dormitory policy.

The control group respondents just answered four questions on dormitory policies, the last of which was the dependent variable item. Then they were thoroughly debriefed and thanked. The *E*-knows respondents were approached and asked to participate in a survey. They were asked to listen to the proposed policy statement and to state their agreement or disagreement with it. Then they were asked to write an essay supporting one side of it: the side was determined by a slip of paper drawn from a box held by the *E*. The side they always got was "for" the policy, although they were led to believe that both sides were possible by noticing a conspicuous stack of completed essays on both sides of the policy that the *E* held. They were offered 50¢ to write the essay, and encouraged to believe that their input would be vital in shaping the policy. All the respondents signed a receipt

similar to that used in Experiment 2 emphasizing personal responsibility. The *E*-doesn't-know group did not let the *E* know their position, and their essays were put unsigned into an envelope with a number of other already completed papers. The results of Experiment 3 contained no significant results (means for the *E*-knows, *E*-doesn't-know, and control groups were 1.50, 1.50, and 1.57, respectively).

C. Discussion and Conclusion

The results of the three experiments are not useful in contraposing dissonance and impression-management theory. Although the designs of the studies seemed particularly well-suited to a manipulation concerning attitude change, the analyses show no indications of change. In light of these facts, the dissonance effect which has been the focus of this research and hundreds of other experiments appears to be a rather weak phenomenon which can be only replicated under very stringent conditions. Nor can the advocates of impression-management theory be encouraged by these results because no improvement over other conditions in attitude change was found in the *E*-knows condition, which had been deliberately designed to elicit impression management. Given the generality of the two theories, it should be concluded that both theories require stricter definitions than they now offer.

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IS THERE REACTANCE IN PERSONAL SPACE?*[1]

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SUMMARY

Two studies were conducted to test the hypothesis that people would react to the close proximity of others by claiming more personal space, but that the mediating variable might be loss of control or security, rather than loss of freedom: Study I, field study of 60 men and women on a public beach; Study II, laboratory study of 160 men and women college students. Results in both studies indicated greater than expected space claims among *S*s placed closer than 7 ft. if *S*s experienced low control (Study I) or experienced the other *S*s to have high control over them (Study II). It was concluded that a reactance-like phenomenon probably exists in personal spacing but that the underlying variable is more likely to be control than freedom.

A. INTRODUCTION

The literature in personal space has grown very rapidly in the past five years, and a proliferation of small, atheoretical studies has appeared since the concept was popularized in two seminal publications (12, 22). A recent bibliography lists approximately 1500 studies involving personal space (18). Unfortunately many of these studies do not mesh conceptually, and contradictions have appeared among them. Conceptual advances have been hampered because correlations between interpersonal distance and other psychological variables have often been low. Further, the effects of contextual and environmental factors are large, making cross-situation reliability difficult to obtain. In a recent survey of the literature (9), the reviewers

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[1] The authors are very grateful to Mr. W. F. Miller, of the Connecticut Department of Environment Protection, for permitting them to work at Hammonassett, and to the Park Manager for his help and assistance. J. J. Edney and N. L. Jordan were the investigators in Study I; J. J. Edney and C. A. Walker, the investigators in Study II. Thanks also go to Carolyn Passamonte for her help with Study II.

were able to distinguish only four consistent findings: (*a*) personal space is influenced by sex, (*b*) children develop spatial norms in regular sequence, (*c*) personal space is affected by culture, (*d*) social interactions which are friendly or positive tend to occur at shorter distances. This lack of overall consistency may well be due to the fact that personal space is only one component of the peculiarly complex dynamics of social interaction and is delicately interwoven with many other factors. A second recent review (20) places personal space in a general systems framework and points out the complexity of the phenomenon in its relationship to other behavioral variables. It has likewise been pointed out that personal space is only one of many concurrent factors involved in social interactions and that these factors are intricately interdependent (1).

With the exception of a few conceptualizations, formal theory is sparse on this topic. It has been hypothesized that spatial separation among organisms is a benefit because it reduces intraspecific aggression (16), and also that personal space is a "functional, mediating, cognitive construct, which allows the human organism to operate at acceptable stress levels and aids in the control of intraspecific aggression" (9, p. 334). On the other hand, one writer saw personal space as having an important role in communicating information, particularly feelings and attitudes (20); interpersonal distance has also been posited as having important consequences for communication (19). It has also been asserted that an important determinant of interpersonal distance is intimacy and that different distances are used for different kinds of social interactions (12). In particular, two theoretical approaches that concern us here are a recent social learning theory conceptualization (5) and a model of personal space as it relates to crowding (23).

Duke and Nowicki presented data to show that personal space is related to an individual's personal sense of *control* over life events (5). Specifically, they indicated that *S*s with an "internal locus of control" (i.e., a belief that largely they control their own fate) can tolerate closer interpersonal distances than those with an external locus of control (those who believe their fate largely depends on external factors beyond their control). If we assume a situation where people find each other mutually threatening, this finding is reasonable, since "internals" should believe they can control threatening others and can therefore stand closer without danger. Duke and Nowicki's data do not indicate whether related concepts like *security* and *freedom*[2]

[2] Dictionary definitions of these terms are as follows: *Control:* 1. to exercise restraining or

might not account for more variance, however; these are concepts which play an important part in interpersonal relations and should therefore bear on personal space dynamics.

Secondly, Stokols advances the interesting idea that reactance dynamics may operate in spatial behavior (23). Reactance (4) is essentially the freedom-expanding response a person displays if he feels his freedom is being unduly limited or restricted. If reactance occurs in spatial behavior, an individual will want to claim more personal space as he feels his freedom being restricted by the physical closeness of others. Again, we do not know whether the conceptually related variables of control and security enter into these dynamics because their bearing on personal spacing has not been explored; for reasons referred to above, however, we suspected they might play a significant role.

The present studies were therefore designed to explore relationships among the three psychological factors of control, security, and freedom as they relate to people's reactions to restrictions in space. Both studies below involved the idea that an individual may claim less personal space (the "bubble" of space around him) than the interpersonal distance available between him and his neighbors. While the "bubble" size and interpersonal distance are usually correlated in a given situation, they are far from perfectly correlated: bubbles may overlap in some situations and be widely separated in others. We therefore distinguish between *interpersonal distance* and *personal space,* the latter being the (usually circular) area immediately surrounding each person.

B. Study I

A large public beach at Hammonassett State Park, Connecticut, was used as the setting for a correlational study. The beach was a straight, 1-¾ mile strip of sand, homogenous except for occasional clusters of concession stands and facilities at the rear of the beach. The study involved six weekend days during June and early July.

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direction influence over, 2. power to direct or regulate. *Security:* 1. safety, 2. certainty, 3. freedom from worry, 4. protection, shelter. *Freedom:* 1. the quality or state of being free, independence, 2. exemption, release, 3. ease, facility, 4. unrestricted use. (*The New Merriam-Webster Pocket Dictionary.* New York: Simon & Shuster, 1964.) It is of interest to note that freedom and control have been conceptually linked by Proshansky, Ittleson, and Rivlin (21) in relation to territories. Ardrey (2) has also suggested that security is provided by territory. Although there are several differences between personal space and territory, the personal space used in Study I is a marginal case (see footnote 3), and this provided us with additional rationale for exploring this cluster of concepts together.

1. *Method*

A procedure established in a previous work (8) was used. Starting from one end of the beach, two investigators worked as a pair and approached every lone person settled on the sand. Generally the investigators divided each day's interviews equally between morning and afternoon; starting points on the beach were reversed each time, and also from day to day.

As an opening to each interview, the investigators explained that they were doing a survey of people's use of recreation areas, and that they would like to ask a few questions. When the respondent agreed, he was asked to fill out a short paper and pencil questionnaire which began with five cover questions which variously asked respondents what kind of recreation area they used most, how many times they had been to the beach that season, what time they arrived and intended to leave, whether the beach facilities were adequate. Then to measure respondent's perception of crowd capacity it asked what was the maximum number of people the respondent thought the beach could hold. After another filler item, respondents were asked to check a number on each of three six-point bipolar scales to indicate the following: (*a*) How much control over the situation do you feel you have here? (*b*) How much security do you feel here? (*c*) How much freedom do you feel you have here?

After the respondent had finished the questionnaire, one of the investigators proceeded to take some spatial measurements around the respondents. First, to do this, the investigator mentioned to the respondent that when people settled on the beach, they often consider an area surrounding them to be their own. To get an idea of the size of this area, in the respondent's case, the investigator said that he would start to walk slowly backward from the respondent, and that the respondent should indicate the point at which he appeared to step out of the area, thus enabling the investigator to tell where the perimeter lay. The investigator then proceeded with this method, first walking backward from the respondent in the direction the respondent was facing, then repeating this at right angles from the first direction, away from the respondent to the left hand side. Both times the distance from the perimeter (indicated where the investigator was told to stop) to the respondent's location was measured with a tape measure. It was assumed that each respondent claimed a roughly circular area and the two distances were later combined into an average measure of area radius.[3]

[3] Edney and Jordan-Edney (8) have argued that the circular area measured in this setting is

During the first investigator's interview, the other investigator estimated and noted the respondent's age, and noted down all markers (visible physical belongings in the respondent's area).[4]

Finally, as an index of interpersonal distance the investigator tape-measured the distance between the respondent and his two closest neighboring groups in any direction. These two measurements were also combined later into an average measure of interpersonal distance (they correlated strongly: $r = .86$, $p < .001$).

After the interview was completed, the investigators thanked the respondent and proceeded to their next *S*. A total of 60 persons was approached in this fashion: 30 males and 30 females. Of these, two persons refused to complete interviews, and an extra two were therefore interviewed to round off the sample.

2. *Results*

Average personal space radius correlated significantly but weakly with average interpersonal distance ($r = .28$, $p < .02$); in other words the amount of available space around a respondent had only a small effect on the personal space he claimed. The reactance model of personal space provides a possible explanation for this low correlation; people who find themselves crowded in by neighbors, beyond a certain point, should symbolically reassert their spatial freedom by maintaining sizeable personal spaces, as opposed to withdrawing their boundaries under the press of bodies around. An interpersonal distance which should be critical in this regard is 7 ft. At this distance, two people can begin to make physical contact by stretching out toward one another; therefore the possibilities for mutual influence are greater and qualitatively different below 7 ft., and feelings of loss of freedom and spatial reactance would be most likely to appear there than at larger distances.

Respondents' personal space sizes (as radii) were therefore analyzed in relation to (*a*) average interpersonal distance to neighbors (more or less than 7 ft.) and (*b*) amount of freedom the respondent experienced in the situation (a median split of the "freedom" responses divided respondents into "High" and "Low" freedom groups). No relationship between interpersonal dis-

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actually a territory (as opposed to mere personal space), since it was marked, described as the respondent's "own," stationary for the duration of the respondent's visit to the beach, a place where the respondent often ate and sometimes slept, and stationary if the occupant left temporarily. See Goffman's (11) taxonomy of personal territories; also Edney (6).

[4] Data collected on these and the cover questions yielded no significant differences, and results from them are therefore not further discussed in this report.

tance and freedom appeared at conventional statistical significance levels. However, the same type of analysis performed with the *control* responses did suggest the hypothesized relationship. While small *n*s and high variance in some cells detract from the reliability of these results (Table 1, Study I), respondents with a low sense of control tended to maintain larger personal spaces when interpersonal distance was small (under 7 ft.) than respondents with a high sense of control ($t = 2.54$, $df = 15$, $p < .05$, two-tailed), while at distances over 7 ft. the differences between high and low control scores were small and not significant.

TABLE 1
PERSONAL SPACE RADII (IN INCHES) BY INTERPERSONAL DISTANCE AND CONTROL EXPERIENCED BY *S* (STUDY 1) OR ESTIMATED CONTROL OF THE OTHER OVER *S* (Study 2)

	Control (median split)	
	Low	High
Interpersonal distance	Mean (*n*)	Mean (*n*)
	Study I: Beach (control experienced by S)	
Under 7 ft.	93.00 (7)	67.89 (9)
Over 7 ft.	108.33 (21)	101.04 (23)
	Study II: Lab (estimated control of other over S)	
Under 7 ft.	27.40 (9)	48.17 (11)
Over 7 ft.	48.17 (34)	39.34 (26)

A second finding confirmed earlier data from this setting (8) that males tended to estimate a larger beach capacity than females (males 5780 people, females 4000 people, $t = 3.13$, $df = 47$, $p < .01$, two-tailed).[5] Third, males scored significantly higher than females on control (3.17 *vs.* 2.30; $t = 2.32$, $df = 58$, $p < .05$, two-tailed), security (4.10 *vs.* 3.50; $t = 1.78$, $df = 58$, $.10 > p > .05$, two-tailed) and freedom (4.20 *vs.* 3.47; $t = 2.25$, $df = 58$, $p < .05$, two-tailed).

Although these results are suggestive from a conceptual point of view, they were based on a sample whose background variance was large because of the nature of the setting. Therefore a second study was designed as a laboratory experiment in order to reduce extraneous influences and variance, to establish interpersonal distance as a clear independent variable and personal space as a dependent variable, and to enable conclusions to be drawn more clearly about other causal relationships. A number of important differences existed between the two studies: *S*s in the first chose

[5] Eleven respondents indicated they could not answer this item.

their own interpersonal distances; they were not usually facing each other with eye contact; they were sittting, lying, or lounging on marked territory, and they were more heterogeneous as people than *S*s in the second study. Those in Study II were all students, were present in the second setting for different motives, and met under defined conditions. However, the elements of central concern (interpersonal distance, personal space, subjective ratings of control, freedom, and security) occurred in both studies.

C. Study II

A very large room (53 ft. × 38 ft.) in the Psychology Department at Arizona State University was used as the laboratory for an experiment in interpersonal distance and personal space. Eighty male and 80 female *S*s participated in the experiment in partial fulfillment of a requirement for an introductory psychology course.

1. *Method*

*S*s signed up for an experiment in "Personal Space" and were run in 80 same-sex pairs. Upon arrival at the laboratory, members of each pair were asked to stand facing each other at an interpersonal distance of either 3 ft., 7 ft., 15 ft., or 30 ft. (pairs were randomly assigned to condition). While standing in this position, each *S* was given a paper and pencil questionnaire, and asked to circle a number on each of five nine-point bipolar scales to indicate how he felt in the situation. The first two scales differentiated the concept of "control" by breaking it into two types: (Q. 1) How much control do you feel you have over the other person? (Q. 2) How much control does the other person have over you? (Q. 3) How much security do you feel at present? (Q. 4) How much freedom do you feel at present? (Q. 5) How much privacy do you feel at present?

When *S*s had completed the questionnaires, the *E* gave each *S* a ball of string and a pair of scissors. *E* directed the *S*s to "Put down a circle of string to indicate the boundaries of your personal space. You can use as much or as little string as you like. Cut the string were it meets the other end (thus completing the circle). You should make a circle." (*S*s were not discouraged from making overlapping circles if they wished.) After *S*s had completed this task, they were debriefed and the session terminated.

2. *Results*

Data on all dependent measures were averaged for pairs, and each pair treated as an n of 1 in statistical analysis.

The data generally show that progressively smaller personal spaces were claimed as interpersonal distance was reduced from 30 ft. down to 7 ft., but *S*s at 3 ft. claimed somewhat larger personal spaces again. This conceptually fits the reactance model of personal space; at a very small interpersonal distance (3 ft.) *S*s were presumably reacting to the threat of loss of control by making larger claims.

Analyses of the mediating effects of control, freedom, and security as reported on the questionnaires revealed two relationships. First, median splits were made of the questionnaire scores on each variable. *S*s reporting that the other *S* had higher than average control over them (Q. 2) also claimed significantly larger personal spaces than those reporting the other *S* had lower than average control—but this only occurred if *S*s were closer than 7 ft. (Table 1, Study II, $t = 2.26$, $df = 18$, $p < .05$, two-tailed). The comparison between high and low scorers on Q. 2 was not significant at interpersonal distances over 7 ft. This finding parallels the corresponding analysis in Study I (however the overall interaction among all cells is n.s.). Surprisingly, *S*s reporting more control over the other (Q. 1) also claimed more personal space at the 3 ft. distance. This result is weaker ($t = 2.19$, $df = 18$, $.10 > p > .05$, two-tailed) and is probably artifactual since Q. 1 and Q. 2 were substantially correlated ($r = .68$) in this sample.

Second, on the basis of a median split, *S*s reporting stronger than average security feelings claimed larger circles of personal space, overall, than those with weaker security feelings (paralleling a nonsignificant difference which emerged in Study I): radii: 51.15 inches *vs.* 34.67 inches, $t = 2.15$, $df = 38$, $p < .05$, two-tailed.

Finally, some sex differences appeared in this study, males claiming larger personal spaces than females (52.33 *vs.* 34.00 inches radius; $t = 2.43$, $df = 78$, $p < .02$, two-tailed), paralleling an n.s. difference in Study I. Males also felt more control over the other (Q. 1; 3.50 *vs.* 2.98; $t = 1.70$, $df = 78$, $.10 > p > .05$, two-tailed). Other nonsignificant differences show males also tended to feel more security and more freedom than females (again paralleling Study I findings).

The "spatial reactance" phenomenon is interesting first because it ties together some previously unrelated findings. Edney reported that *S*s experimentally given control in a social situation and also induced to claim the larger part of an environment as "theirs," actually reported smaller minimum-space-needs-per-person than *S*s allowed to claim only a small part of the same environment (7). Having less "available space," in other words, led to a desire for more, which parallels parts of the present

findings. The same study (7) reported persons high in personal control could tolerate smaller interpersonal distances than those low in control—paralleling Duke and Nowicki's findings, and mirroring the present results where persons high in control needed less space when small interpersonal distances were available.

Second, the spatial reactance phenomenon also suggests an explanation for the often-cited observation that persons with personality abnormalities (e.g., autistic children, schizophrenics, violent prisoners) prefer abnormally large personal spaces (3, 10, 13, 14, 15, 17, 24, 25, 26, 27). It is probably these individuals' low sense of control, as opposed to their lack of security, that promotes the abnormal spatial behavior.

Third, the spatial reactance findings bear closely on the problems of human crowding (23). Thus overcrowding (in the sense of too many people for a given space) will not only be frustrating because of the inherent limitations on human movement, but according to the present findings, the problem will be exacerbated by a person's need for more space than is available if he feels a loss of control. Previous research has shown that persons who had controlling personalities reported they could tolerate more persons in a given environment than persons who were not typically controllers (7). Presumably, therefore, control plays a significant part in spatial relations at close quarters. Our results indicate, of course, that more than one solution is possible to the problem of a noxiously overcrowded environment: one is to seek more space (an environmental solution), the other is to somehow strengthen one's sense of control (a cognitive or clinical solution). The latter prompts a prediction that the experience of crowding can be modified through such cognitive means as attitude change or attribution manipulations.

Since many of the present results were based on internal analyses, they could be clarified through further research designed to make their relevance to crowding and personal space more explicit. For instance, if one assumes threat of control loss is more serious when a person is confronted with strangers than with familiar people (who are more predictable), then the experimental paradigm in Study II should yield differences between pairs of friends *vs.* pairs of strangers, with spatial reactance possibly not occurring among friends. By the same token, the present results suggest that close crowding conditions may be easily tolerated among friends, not only because the people involved feel control to be more in hand, but because friendship bonds actually enhance control feelings, further reducing the amount of space required by each person. An earlier finding (8) encourages

this prediction; groups of people (friends) sitting on a public beach were found to claim little more space than individuals—i.e., space per person in groups was much reduced from that required by lone persons.

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MODELING, AROUSAL, AND AGGRESSION*

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SUMMARY

In order to determine the effects of reading aggressive, neutral, and erotic passages on subsequent aggressive responding, 89 female and 61 male undergraduates were randomly assigned to six conditions, with *Ss* either insulted or not insulted while reading one of the three types of passages. The dependent measure of aggression was a questionnaire which evaluated the study by using a rating scale and a choice of adjectives measure. Analysis of the rating scale evaluations showed a significant treatment effect such that the erotic group was more aggressive than the neutral group, which did not differ from the aggressive group. A significant treatment × insult interaction also indicated that *Ss* in the no-insult-aggressive and insult-neutral conditions were significantly less aggressive than those in the other four groups. Similar trends were found for the adjective choice measure. The results supported the arousal theory rather than the incompatible response theory of sexual stimulation. The interaction was interpreted in terms of the inhibition of aggressive behavior in the presence of weak provocation to aggression.

A. INTRODUCTION

The widespread availability today of many different kinds of symbolic materials of an aggressive and erotic nature has led many researchers to begin investigating the effects of these symbolic models on subsequent aggressive behaviors. For example, investigators have looked at the effects of such models as films (2, 6, 11, 13, 18, 19), television (1, 17), comic books (4, 5), and radio broadcasts (15, 16).

The modeling studies mentioned above have all been based on the assumption that seeing an aggressive model will increase subsequent aggressiveness. Feshbach and others, however, have suggested that some-

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times viewing another's aggressive behavior can serve to reduce one's impulses to aggression through the mechanism of catharsis. The present study was conducted, in part, to examine which of these theories, modeling or catharsis, could best explain the effects of viewing an aggressive symbolic model.

Another area of recent interest to researchers has been the relationship of arousal to aggression and more specifically the effects of the *S*'s interpretation or labeling of his feelings of arousal on his subsequent aggressive behavior. Schachter and Singer (14) showed that under drug induced arousal, *S*s who did not know the cause of their arousal experienced the arousal as aggression when others responded in a hostile manner and as euphoria when others responded in a euphoric manner. Results of a study by Harris and Huang (9) using unpleasant noise rather than drugs supported the Schachter and Singer study.

In a study by Geen, Rakowsky, and Pigg (8) that also examined the relationship of the interpretation of arousal to aggression it was found that when a person was led to attribute his arousal to some source other than an attack made upon him, his aggressive behavior and anger were less intense. In a second study Geen and Pigg (7) investigated the effect of interpretation of arousal on motivation and found that *S*s behaved in a manner appropriate to their attribution of their arousal.

The tendency to act aggressively in conditions where stimuli cause a person to label his own arousal as anger is not the only implication of the arousal theory. Bandura (1) has suggested an additional effect:

> Under conditions in which individuals are prone to behave aggressively any source of emotional arousal may enhance aggressive behavior (1, p. 56).

This was supported in a study by Meyer (12) who found that angered *S*s who viewed a sexually arousing film were more aggressive in a subsequent measure than those who viewed a nonviolent film, or those who viewed no film. Similarly, Zillman (20) found that aggressive and sexual arousal enhanced subsequent punitiveness compared to nonaroused *S*s. Jaffe, Malamuth, Feingold, and Feshbach (10) also found that sexual arousal led to the delivery of stronger shocks to a victim.

An alternative to the arousal theory is the "incompatible response" theory proposed by Baron (3). He suggests that viewing erotic pictures may serve to divert the attention of the provoked *S* from thinking of the wrongs he suffered, and so function to reduce his level of anger of arousal. The results of a study conducted by Baron (3) support this hypothesis.

The present study attempted to look at the effect of reading aggressive,

erotic, or neutral passages on subsequent aggression for *S*s who had either been insulted or not. It was predicted that in both insult and no-insult conditions those who read aggressive material would tend to be more aggressive on a subsequent measurement of aggression than a control group, as suggested by social learning theory. The catharsis theory, however, would predict the opposite: those who are insulted and then read aggressive material should be less aggressive than *S*s in other conditions. It was also predicted that *S*s who were insulted and then read erotic material would attribute their heightened arousal to their feelings of anger and tend to respond more aggressively in accord with the arousal theory. However, if the incompatible response theory of Baron is correct, then those who are insulted and read erotic material should be less aggressive.

B. Method

1. *Subjects*

*S*s were 89 female and 61 male students in five undergraduate and two graduate classes in education. They were assigned to conditions within classes by randomly ordered booklets.

2. *Materials*

There were six forms of the booklet, typed to look identical except at close inspection. The cover page on all of the booklets indicated that this was a study of error detection in written passages. *S*s were asked to put their sex but not their name on the booklet. Half of the cover sheets then went on to insult the *S*s by discussing the fact that students who take education courses tend to be intellectually inferior to other students, while the other half carried a bland discussion of the relationship between choice of major and personality characteristics. Both sheets then continued with a statement that the study was examining the effect of reading typical leisure time material on error detection and instructed the *S*s to read the following passages and correct the spelling and punctuation errors therein. On the second page, the booklets were further subdivided into those containing neutral, erotic, or aggressive passages. Each contained three passages matched for length and number of errors. The aggressive passages were constructed with the use of detective stories as models, and described rather gruesome physical fights between either men or women. The erotic passages were constructed with the use of popular erotic novels as models and described scenes of precoital and coital activities. The neutral ones

were descriptions of scenes containing no aggressive or erotic material. *Ss* in all conditions received an identical final page. It was typed on an obviously different typewriter and was the dependent measure. The first side of the page was entitled "Research Project Evaluation Form." It contained a place for a project number and name of the researcher, which were filled in in pen. Following this, a short paragraph described the form as a device to evaluate research projects carried out in the department. It was further explained that the results of the evaluation would be compiled and transmitted to the researcher in order to improve the quality of the research projects conducted. The rest of the page was a rating scale which contained six questions which involved the *S*'s opinion of the scientific importance and interest of the study, value for him personally, and rating of the researcher's competence, courtesy, and attitude. The back of the page contained two more questions, one concerning the adequacy of the explanation of the study and the other asking whether the *S* would be willing to participate in similar studies. The questions were rated on a seven-point scale: 7 (extremely favorable) and 1 (extremely unfavorable). The last question, or adjective choice part, requested that the *S* circle three adjectives from a list of 20 which they felt best described the study. The list consisted of 12 favorable adjectives like "valuable," "informative," etc., seven unfavorable adjectives like "frustrating," "stupid," etc., and the adjective "neutral." The remainder of the page was reserved for any comments the *Ss* might have. It was felt that a low rating of the study, or the use of unfavorable adjectives, would serve as a measure of aggressive responding.

3. *Procedure*

The *E*, who was a female graduate student in education, entered the room and explained that this was a study of error detection in written passages. After telling *Ss* that they were not required to participate, and requesting that no one communicate with others in the room, the *E* handed out the booklets. When all the booklets were completed, the *E* collected them, and a lengthy debriefing was conducted, including apologies for the deception and insult and an explanation assuring *Ss* that there was no validity to the insulting statements made on the insulting cover sheet.

C. Results

Eighty-nine females and 61 males filled out the first page of the questionnaire, but only 86 females and 60 males filled out the back. For that

reason, the *n*s for the analyses of the adjectives chosen are smaller than those for the analysis of variance.

1. *Rating Scales*

Answers to the questions were scored from 1 to 7 with 1 indicating a more aggressive response or less favorable attitude toward the study. The mean and standard deviation of the responses to each question were calculated for those 135 *S*s who answered all eight questions, and those who did not were assigned a score in those questions equivalent to their standard score on those questions they did answer. Thus if someone averaged 1.5 *s* above the mean on the seven questions he answered, he was assigned a score equivalent to 1.5 *s* above the mean for question eight. Each *S*'s score was summed across all eight questions to provide a total measure of aggressiveness, which could range from 7 to 56.

The mean scores for *S*s in each condition are shown in Table 1. A 3 × 2 × 2 unweighted means analysis of variance of these scores indicated significant treatment ($F = 4.42$, $df = 2/138$, $p < .05$) and treatment × insult interaction ($F = 3.45$, $df = 2/138$, $p < .05$) effects. No significant sex effects or other interactions were found. A Scheffé *post hoc* comparison showed that the erotic group was significantly more aggressive than the neutral ($F = 7.29$, $df = 1/138$, $p < .05$) group, while there were no differences between the aggressive and neutral conditions ($F = <1$, $df = 1/138$, $p > .05$). The difference between the erotic and aggressive groups just missed statistical significance ($F = 5.928$, $df = 1/138$, $p < .06$). Another Scheffé *post hoc* comparison showed that the *S*s in the no-insult-aggressive and insult-neutral conditions were significantly less aggressive than those in the other four groups ($F = 33.33$, $df = 1/138$, $p < .05$).

TABLE 1
MEAN AGGRESSION FOR MALE AND FEMALE *S*s IN ALL CONDITIONS

Insult manipulation	Passages					
	Aggressive		Erotic		Neutral	
	male	female	male	female	male	female
Insult	38.17	34.75	34.36	35.81	40.17	42.99
No-insult	40.59	42.48	36.07	32.25	38.00	36.65

Note: Lower scores indicate higher levels of aggression.

2. *Choice of Adjectives*

The percentages of unfavorable adjectives chosen by male and female *S*s in all conditions are shown in Table 2.

TABLE 2
PERCENTAGES OF UNFAVORABLE ADJECTIVES CHOSEN IN THE DIFFERENT CONDITIONS

Insult manipulations	Passages		
	Aggressive	Erotic	Neutral
Insult			
male	51.6	35.7	8.3
female	42.9	48.9	30.6
total	47.4	43.8	26.2
No-insult			
male	33.3	34.3	40.9
female	23.9	63.6	56.1
total	27.3	48.5	50.8

The percentages of unfavorable adjectives chosen by females in the aggressive (31%), neutral (42%), and erotic (55%) conditions were significantly different ($\chi^2 = 9.007$, $df = 2$, $p < .05$), but the differences for males and all *S*s combined were not significant. Similarly the percentages for all six groups were different for females ($\chi^2 = 19.149$, $df = 5$, $p < .01$) and for males and females combined ($\chi^2 = 16.94$, $df = 5$, $p < .01$), but not for males alone, with those in the no-insult aggressive and insult-neutral groups being least aggressive, as in the rating scale measure. The difference between *S*s in these two groups and those in the other four groups was statistically significant for female *S*s ($\chi^2 = 15.27$, with Yates' correction, $df = 1$, $p < .001$) and for all *S*s combined ($\chi^2 = 14.872$ with Yates' correction, $df = 1$, $p < .001$) but not for males alone. No sex differences or differences between insulted and noninsulted *S*s were found.

D. DISCUSSION

One clear implication of the data from this experiment is that the arousal rather than the incompatible stimuli theory of sexual stimulation best fits the results. *S*s who read the erotic material were subsequently significantly more aggressive, as measured by the rating scale for all *S*s and by adjective choice for females, than those reading neutral material. Although it is possible that the erotic material simply made the *S*s angry (possibly the authors are inexperienced at writing pornography), the interpretation that general arousal caused by reading it was interpreted as anger by the *S*s seems more parsimonious.

Similarly, it is clear that the catharsis theory is not supported by the results, since *S*s reading aggressive material were not subsequently less aggressive than those in the neutral condition. If only the data for *S*s who were insulted are examined, it appears as if a modeling effect is present, since those reading aggressive material were more aggressive than those reading neutral material. However, in the no-insult condition a puzzling reversal appears, with *S*s reading neutral material being more aggressive than those reading aggressive material. This pattern of results, found on both the rating scale and adjective choice measures, is identical to that found by Schuck *et al.* (15) for males in their study, with those hearing a violent radio broadcast more aggressive than those hearing a neutral one if they were insulted and those hearing the neutral one more aggressive if not insulted; however, they found exactly the opposite pattern for females. Schuck *et al.* attempt to explain the pattern for females in terms of inhibition of aggression (4), but their *ex post facto* interpretation is somewhat weak. Similarly, in the present study it may be that *S*s seeing aggressive models but not insulted did not have sufficient provocation to aggress and therefore inhibited their aggressive impulses; similarly those insulted but not given aggressive cues might also have inhibited their aggressive tendencies. It is certainly possible that both an instigation to aggression (such as an insult) and a cue for aggression (such as a model) might be necessary for aggressive responding to occur, if neither provocation is very strong, and that a weak instigator or cue by itself might serve to inhibit rather than strengthen the tendency to aggressive behavior. If this is true, it would also seem to explain the lack of overall effect of the insult manipulation.

In short, the results support the theory that any kind of arousal, including sexual arousal, may increase subsequent aggressiveness, and they extend the use of symbolic models for aggression to the domain of reading matter for adults. However, the interpretation of lesser aggressiveness for insulted *S*s in the neutral condition and for *S*s reading aggressive material in the no-insult condition as being due to inhibition of aggressive behavior needs to be based on a firmer theory of when inhibition of aggression can be expected and when it cannot. It, therefore, seems reasonable to postulate that weak provocations to aggression, in the form of either cues (e.g., models) or instigators (e.g., insults or frustration) may serve to inhibit aggressive responding, whereas strong provocation strengthens aggressive behavior. Certainly, further theorizing and research is necessary to ascertain the parameters of such inhibition.

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REVISING RACE PREJUDICE SCALES*

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SUMMARY

This paper presents the results of a recent attempt to update portions of the E scale and make it a more useful device for ascertaining the *S*'s tendencies towards negative racial stereotypes. Current changes in social mores and increasing sophistication in the style of expressing racial prejudice may well have outdated this instrument in many populations. The authors thus attempted to rephrase many of the original items to make them more appropriate for contemporary use and subsequently administered the scale to 450 male *S*s between the ages of 23 and 49. They represented a wide cross-section of religious and ethnic backgrounds, social classes, and residence (inner city, suburban, and rural). The results obtained indicate that the extensive rewording of the items in order to be more in accord with contemporary racial mythologies appears to be both useful and necessary. These changes raise, at the same time, a number of questions about possibilities for replication or longitudinal studies and may also have implications for understanding the nature of social prejudice as related to personality structure on the one hand and social norms on the other.

A. INTRODUCTION

Much of the study of racial and ethnic prejudice has been grounded in two major traditions: the sociohistorical and the psychodynamic. In the former, racial and ethnic attitudes are seen as deriving from the interaction of social, structural, political, economic, and historical factors. The individual is then thought to display "prejudice" because social expectations demand and reward such behavior. It has been shown, for example, that Southern white migrants easily adapt to an integrated work environment once they have settled in the North (2).

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Racial prejudice is thus seen as a relatively superficial characteristic, having to do more with a general tendency to social conformity than with a propensity towards bigotry. From this perspective, racial prejudice is alleged to be sharply diminishing in the United States. Pettigrew, for example, examines a number of indices and contends that there has been a "striking reduction" in anti-Semitism in recent decades (6, p. 169) and finds that there has been a parallel decrease in antiblack sentiment.

The psychodynamic tradition sees racism as a more enduring or fundamental part of the individual personality structure. The most widely recognized formulation in this tradition is, of course, the "Authoritarian Personality" construct developed by Adorno and his co-workers. The recent reduction in prejudice, in the view of many psychodynamically oriented writers, may be more apparent than real. It is clearly less socially acceptable to express overt bigotry today than it was 20 or 30 years ago. This cultural shift could have an impact on responses to poll takers' questions without changing fundamental aversions or hostility to outgroups. In Pavlak's recent study of white, urban ethnics (5), he found that over 3/4 of his respondents were unperturbed by the idea of working with blacks, 21% were willing to live in mixed neighborhoods, and only 3% could accept the idea of a black marrying into their family. One might argue that the first figure is indicative of the breakdown of occupational barriers and hence a meaningful reduction of racism. One could also look at the fact that 97 out of 100 Northern whites cannot accept intermarriage and take this as a barometer that the most fundamental taboos, hatreds, and fears of white racism remain highly salient. Shifting cultural norms can conceivably facilitate a change in the modes of expression of racism without eradicating the kind of underlying propensity to which Adorno refers: i.e., to project onto and to hate outgroups.

The question then becomes how one can obtain indicators of this relatively submerged racism. There is evidence that many whites still fear contamination through intimate contact, although apparently accepting impersonal interactions. Whether or not this situation represents a true diminution of racism, it would seem that modified stimuli may be needed to evoke ethnocentric responses.

In 1973, the authors began pretesting a multifaceted questionnaire in a very conservative rural area, as well as in an urban New England center. One scale of the many used was the shortened (20 question) version of the original E scale developed by Levinson (3) and used in the studies of the Adorno group (1, p. 142). The authors of this scale reported reliability to be in the range of .80. Three separate subscales comprise this 20-item version

of the original scale (8, p. 402-405): attitudes towards "Jews," towards "Negroes," and towards "other minorities and patriotism." As Shaw and Wright point out, "some of the items on the scale are [clearly] dated" (8, p. 403). These items—such as the one referring to "zootsuiters"—were immediately altered to be applicable. The scale does have the obvious strength of having demonstrated reliability across very diverse samples, as well as predictive validity (4, 9). Somewhat surprisingly, we encountered two kinds of problems in its administration. First, many people were offended that we would even ask such questions. Simply being confronted with the choice of agreeing or disagreeing with these statements was regarded as a affront. Objections were raised to such statements as

> Negroes have their rights, but it is best to keep them in their own districts and schools to prevent too much contact with whites.
>
> It would be a mistake ever to have Negroes for foremen and leaders over whites.
>
> I can hardly imagine myself marrying a Jew.

Secondly, virtually no one appeared to be bigoted in terms of their scale scores: respondents tended to cluster at the extreme low "E" end of the spectrum. The third author, who had recently conducted a poll in the Atlanta area among working class whites, encountered substantially the same difficulty there. There appeared, from the survey responses, to be virtually no prejudice among lower class whites in the Deep South.

This may mean that ethnocentrism is being rapidly eliminated in this country. It may also indicate that the traditional devices for measuring racism are no longer adequate to detect and differentiate contemporary forms of prejudice. Social change and a growing sophistication among all sectors of the population lead respondents to look at these questions with greater awareness of their meaning in relation to the negative "Archie Bunker" stereotype. We thus sought to reword the questions to be less offensive and so that they could more adequately differentiate respondents. Even if racism is diminishing, we might still assume that it is differentially distributed in the population and is related to more general personality variables. All reworded items on the scale are listed in the appendix.

B. Method

1. *Subjects*

As part of a larger study of adult life stages in men, 450 *S*s in New England, comprising both an urban-suburban and a rural sample, responded to an extensive questionnaire. They ranged from 23 to 49 years of

age and were drawn from all social classes and a great variety of ethnic groups. The members of the urban-suburban segment resided in areas known for strong ethnic identifications and more than occasional racial and ethnic strife. They could thus be thought to be highly sensitized to the issues of race, ethnicity, and intergroup strife. Our rural sample derives from a more homogenous region where exposure to nonwhites is essentially through the mass media and where there is a long-time tradition of hostility or suspiciousness towards "outsiders."

2. *Procedures*

All *S*s participated in a lengthy interview and responded to a number of self-report scales in such dimensions as tolerance for ambiguity, punitiveness towards children, and attitudes towards war. In addition, we reworded many of the items on the shortened E scale to reduce the (currently perceived) demand characteristics of the questions. Our purpose was to develop a revision capable of differentiating respondents on degree of ethnocentrism and to establish the relationship between this revised scale and other presumed authoritarian tendencies.

In general, items were reworded to soften their impact or to give the respondent the "out" of presenting himself as pragmatic rather than bigoted. For example, the "offensive" questions cited above were modified to read as indicated in the appendix.

As in the original scale, responses were recorded on a six-point scale of strongly agree to strongly disagree. The nonracism questions on the E scale did not, interestingly, require the same sort of rephrasing.

C. Results and Discussion

These changes in wording, although they may appear to be minor, alleviated the problem of offending respondents and produced what appears to be a useful instrument. With 18 items on the scale, we obtained a split half correlation of .76. The correlations of the halves with the whole were .82 and .85. A factor analysis indicated high communality on the scale, with factor loadings varying from .43 to .74. (Fourteen of the 18 items had factor loadings of .53 or higher). Varimax rotation revealed the existence of three factors within the scale with eigenvalues in excess of 1.0. (see Table 1). The factors can be described as follows: Factor I—high pro-Americanism and general ethnocentrism, Factor II—more specifically anti-Semitic attitudes, and Factor III—anti-black sentiments. Factor I has an eigenvalue of 6.6 and accounts for 36.8% of the variance. The next two

TABLE 1
REVISED E SCALE FACTOR LOADINGS

Item	Loading	Item	Loading	Item	Loading
Factor I Pro-Americanism and Ethnocentrism		*Factor II: Anti-Semitism*		*Factor III: Anti-Black*	
America perfect	.71	Family best	−.00	No black leaders	.74
Be patriotic	.69	America perfect	−.06	Negroes stay in place	.61
Foreign ideas bad	.66	America independent	−.06	No mixed marriage	.60
America independent	.63	No Black leaders	−.09	Chicanos in place	.44
Civil rights agitators	.61	Civil rights agitators	−.18	Blacks do labor	.44
Blacks overbearing	.51	Foreign ideas bad	−.20	Family best	.44
Hippies cause trouble	.43	Negroes stay In place	−.20	Civil rights agitators	.43
Blacks do labor	.40	No mixed marriage	−.26	Blacks overbearing	.43
Chicanos in place	.37	Hippies cause trouble	−.28	America independent	.29
Family best	.34	Be patriotic	−.31	Jews take over	.24
Negroes stay in place	.29	Blacks overbearing	−.35	Jews alike	.21
Jews irritate	.24	Chicanos in place	−.43	Hippies cause trouble	.18
Jews strange	.23	Blacks do labor	−.44	Jews stick together	.15
Jews alike	.18	Jews stick together	−.63	America perfect	.14
Jews take over	.16	Jews alike	−.68	Foreign ideas bad	.00
No black leaders	.10	Jews take over	−.70	Jews irritate	.07
No mixed marriage	.05	Jews strange	−.76	Jews strange	.05
Jews stick together	.02	Jews irritate	−.81	Be patriotic	.00

Note: Underlined items comprise the subscale.

factors account for sharply diminished proportions of the variance: 8.8% and 6%, respectively.

The subscales as modified thus seem still to be distinct but highly intercorrelated, as they were in 1949. It is also interesting to note that by modifying the most overt or offensive statements on each scale we increased the variability of response on the unmodified questions.

Moreover, scale scores correlate with other "authoritarian" measures and differentiate sectors of the population in the direction that we would expect from earlier findings. The internal cohesion of our scale—in which some of the older items which showed more frank prejudice were retained—adds some strength to the idea that what we are measuring is more indirect or rationalized bigotry. In the factor analysis of the over 20 variables (scale scores) in our original study, an overall pattern of authoritarianism emerged as one of our strongest factors (7).

This factor consisted of punitive, controlling attitudes towards children, intolerance for ambiguity, and the inclination to present a conventional facade, as well as our measures of ethnic bigotry. The expected relationship between this factor and social class ($r = -.25$) was found to be significant beyond the .01 level ($F = 1.579$). Factor scores also varied with age and residence in the predictable directions: older men were more ethnocentric and authoritarian than younger ones and rural residents were more bigoted than those residing in urban or suburban areas, with these differences being significant at the .05 level. As social support for racist attitudes diminished, it would seem that those with high F tendencies became more muted and circumspect in their expressions of racism. They remained, nonetheless, demonstrably more bigoted than others in the population. Moreover, we do find support for the notion that ethnocentrism continues to be embedded in more general tendency to adopt an authoritarian stance.

We would conclude, then, that indications of racial bigotry can still be found through the use of questionnaire devices and still represent part of an authoritarian constellation linked to social class, age, and residence. Such survey intruments can only yield useful results if they reflect current shifts in social ideologies and catchphrases. Shifting terminologies (e.g., "neighborhood schools" *versus* the older "separate but equal") can be seen as indicative of an ongoing trend of individuals and subgroups maintaining central areas of social separatism while disavowing racist feelings. By laundering the original E scale statements—making them sound more reasonable even while they lead to the same discriminatory results—we were better able to differentiate our respondents. This is not to say that we

now have developed a definitive scale of 1970's. On the contrary, we would have to emphasize the need for pretesting any such instrument and point to the likelihood that future studies will require further revisions in the wording of scales.

This procedure of updating scales will surely create problems for those wishing to examine changes in racial attitudes over time. There is no easy solution to this problem. It seems to us no more valid to compare responses to statements that may appear anachronistic at a given point in time than to rephrase these statements. The fact that people are now less willing to admit bigotry than they were 30 years ago is in and of itself, as Pettigrew argues, an important phenomenon. On the other hand, there are still many reasons for wishing to understand what this more subtle racism is like, how it is distributed in the population, and what its functions may be within the individual's personality system. Answering these questions will probably require continual revisions of the standard scales and/or the creation of new measures. The criteria for revising scales or accepting new instruments should, we suggest, involve both demonstrable validity and a strong degree of internal cohesion. Only when such scales fail to exhibit reliability in the range found by Levinson can we reasonably conclude that general ethnocentric patterns are breaking down.

Appendix: E Scale: Modified Questions

Sub-scale A (anti-semitism) 6 questions

Question number original scale	
1.	1. Many people feel that Jewish businessmen stick together and prevent other people from having a fair chance in competition.
4.	2. There are just too many problems when a Christian marries a Jew.
10.	4. Once Jews are let into a neighborhood, they tend to take it over.

Sub-scale B (anti-Blacks) 5 questions (question 3 of old scale deleted)

3.	1. Negroes have their rights, but often everyone is happier when they stay in their own districts and schools and avoid too much contact with whites.

5. 2. It often leads to hard feelings when you have Negroes for foremen and leaders over whites.

11. 4. It often seems that blacks are more suited to manual labor and unskilled jobs than to more skilled or responsible work.

14. 5. The black civil rights movement has too often been used as a front for radical agitators trying to stir up conflicts.

17. 6. Many Negroes have become overbearing and disagreeable since all the fuss has been made over civil rights.

Sub-scale C (Pro-Americanism and Ethnocentrism) 7 questions (question 8 of the old scale deleted)

2. 1. Hippies prove that when people of their type have too much money and freedom, they just take advantage and cause trouble.

15. 5. Chicanos are all right in their place, but they turn people against them when they dress lavishly and go around with white girls.

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OCCUPATIONAL STRESSES AND JOB SATISFACTION*[1]

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SUMMARY

In a test of the hypothesis that some occupational stresses are desirable and some are not, the relationship between 14 sources of occupational stress and 12 aspects of job satisfaction was studied in 228 males, employed full-time and members of one of three professional associations: professional engineers, industrial accountants, or chartered accountants. The occupational stress index was significantly related to the job satisfaction index—the greater the stresses, the lower the satisfaction. But, when the specific item intercorrelations were examined, a more complicated picture emerged. For instance, about 30 percent of the correlations were in the opposite direction. And, four of the occupational stress items correlated in the opposite direction with all or nearly all of the job satisfaction items. Thus, certain types of occupational stresses, primarily associated with enlarged or demanding jobs, were positively related to employee job satisfaction.

A. INTRODUCTION

The literature (8, 9) indicates that dysfunctional individual consequences can result from occupational role stress (e.g., role conflict, role ambiguity, role overload). Role theory states that when the behaviors expected of an individual are inconsistent—one kind of role conflict—he will experience stress, become dissatisfied, and perform less effectively than if the expectations imposed on him did not conflict. Role theory likewise states that role ambiguity—lack of the necessary information available to an organizational position—also increases the probability that the person will be dis-

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satisfied with his role, will experience anxiety, and will, thus, perform less effectively.

Beginning with the work of Kahn and his associates (5) and, as recently as the current work of House and his colleagues (3, 8), the accumulated data support the hypothesis that occupational role stresses are negatively correlated with job satisfaction. Thus, the general conclusion that emerges in the popular literature is that all stresses are bad. It is difficult to pick up a professional magazine that does not contain some sort of article on job stress or pressure. Titles such as "The Executive Crack-Up," "Job Stress and the Employee," and "Dealing with Job Tensions" abound.

One article (2) that takes issue with this negative view of job pressure reports that certain pressures seem to enhance researchers' job attitudes and performance. The authors conducted their study in 22 moderate-sized research-and-development organizations. Data on laboratory job pressures were obtained near the end of group interviews with the question, "What sorts of pressures do people feel around here the most?" There was considerable agreement from one laboratory to another on the three main types of pressure that were experienced by research personnel: time, quality, and financial responsibility. The three types of occupational pressures were found to have different impacts on (*a*) individual satisfaction and involvement and (*b*) organizational performance. In marked contrast to the dark view of job pressure, presented in many writings, Hall and Lawler found that certain pressures could, in fact, be functional. In their sample of research laboratories, quality pressure was particularly useful in that it related positively to both the job involvement of individual scientists and the technical effectiveness of their laboratories. Financial responsibility pressure was also a useful kind of pressure for both the individual scientist and his organization. This pressure was significantly correlated with laboratory effectiveness and the satisfaction of the scientist's need for autonomy, suggesting that sharing in the financial responsibilities of the organization increases the individual's sense of freedom from the control of the organization.

The present investigation follows up this line of reasoning by examining the relationship between 14 measures of occupational stress and 12 aspects of job satisfaction. The general hypothesis would be that certain occupational stresses would be negatively related to certain aspects of job satisfaction and to total job satisfaction, while other occupational stresses would be positively related to certain aspects of job satisfaction and to total job satisfaction.

B. Method

1. *Subjects*

The sample consisted of 228 males. They were employed full-time and were members of one of three professional associations: 61 professional engineers, 91 industrial accountants, 76 chartered accountants. Three-hundred names of male members were randomly selected from the membership roster of each of these associations.

2. *Measures*

a Job stress. This area was measured by a series of 14 items of Likert scale format (1, 4, 5). The respondent was asked to indicate the extent to which he was bothered by a number of potentially stressful occupation situations (work overload, too much responsibility, too little authority, lack of performance evaluation feedback, etc.). Index scores could range from 14 (low strain), to 46 (high strain), with this sample having a mean score of 26.2.

b Job Satisfaction. This area was measured by a series of 12 items of Likert scale format. The respondent was asked to indicate the extent his present job provided opportunities for making full use of present knowledge and skills, growing and learning new knowledge and skills, earning a good salary, advancing in administrative authority and status (promotions), advancing in professional respect of colleagues and chiefs, having congenial co-workers as colleagues, working on difficult and challenging problems, having freedom to carry out own ideas, being evaluated fairly in proportion to contributions, work that is felt to be important, variety of tasks and activity, and job security. Index scores could range from 12 to 60 and this sample had a mean score of 33.8.

Overall or global satisfaction was measured by the following question, "Considering your job as a whole, how well do you like it?" The alternatives were five in number and ranged from 1, "I don't like my job at all" to 5, "I like my job very much." This sample had a mean score of 4.1 on this item, indicating a high degree of job satisfaction.

C. Results

1. *Occupational Stress*

The left half of Table 1 presents the means and rank order for each of the 14 occupational stress items. This sample reported the most occupational stress from (*a*) not being able to get needed information, (*b*) too slow

TABLE 1
MEANS AND RANK ORDER OF THE OCCUPATIONAL STRESS AND JOB SATISFACTION ITEMS

Occupational stress Item	Mean	Rank[a]	Job satisfaction Item	Mean	Rank[b]
Too little authority	1.91	8.5	Using present skills	2.76	8.5
Unclear job responsibilities	1.91	8.5	Learning new skills	2.87	3
Too much responsibility	1.28	14	Good salary	2.85	5
Unclear promotional opportunities	1.94	7	Advancement to greater administrative status	3.17	1
Too heavy a workload	2.14	3	Increased professional respect of colleagues	2.99	2
Can't satisfy conflicting demands	1.83	10	Congenial co-workers	2.74	10
Not fully qualified for job	1.70	12	Challenging job problems	2.65	11
Someone else may get job I want	1.48	13	Freedom to use own ideas	2.76	8.5
Not knowing boss's evaluation	1.98	6	Evaluated fairly	2.85	5
Can't influence my boss	1.99	5	Feeling my work is important	2.82	7
Can't get information I need	2.18	1	Variety of tasks and activities	2.51	12
Too slow job progress	2.16	2	Job security	2.85	5
Making decisions that affect others	2.06	4			
Unreasonable pressures for performance	1.75	11			

[a] The lower the rank, the higher the occupational stress.
[b] The lower the rank, the lower the job satisfaction.

job progress, and (*c*) too heavy a workload. They reported least occupational stress from (*a*) not feeling qualified to handle their jobs, (*b*) concern that someone else might get the higher position they sought, and (*c*) too much responsibility. The differences in means ranged over almost a full scale point on a four point scale.

2. *Job Satisfaction*

The right half of Table 1 presents the means and rank order for each of the job satisfaction items. This sample reported least opportunities in their jobs for (*a*) advancing in administrative authority and status (promotion), (*b*) advancing in professional respect of colleagues and chiefs, and (*c*) growing and learning new knowledge and skills. They reported most opportunities for (*a*) having congenial co-workers as colleagues, (*b*) working on difficult and challenging problems, and (*c*) doing a variety of tasks and activities. In general, the differences in satisfaction among these 12 items were small; all means fell within approximately half a scale point on a five point scale.

3. *Relationship of Occupational Stresses to Job Satisfaction*

The occupational stress index was significantly and positively related to the job satisfaction index (.26, $p < .01$, two-tailed test). Thus, the greater the extent to which the respondents reported the presence of the occupational stresses, the lower was their job satisfaction. The occupational stress index was also significantly and positively related to the global job satisfaction measure (.40, $p < .001$, two-tailed test).

The item intercorrelations, however, suggested a somewhat more complicated pattern. One-hundred and sixty-eight correlations were computed between the 14 occupational stress items and the 12 job satisfaction items. One-hundred and seventeen were positive (70%) and 76 of these (65%) were significantly different from zero at the .05 level of confidence (two-tailed test). Fifty-one were negative (30%) and nine of these (18%) were significantly different from zero at the .05 level of confidence (two-tailed test).

The largest positive correlations between the occupational stress items and the job satisfaction items were (*a*) "too little job authority and responsibility" and "little freedom to use own ideas" (.49); (*b*) "unclear about job duties" and "little freedom to use own ideas" (.36); (*c*) "unclear about promotional opportunities" and "fair evaluation of what I accomplish" (.34); (*d*) "too little job authority and responsibility" and "job security" (.34); and (*e*) "don't know where I stand with my boss" and "fair evaluation of what I accomplish on the job" (.34). The more the individual experienced each of these occupational stresses (first one mentioned in each pair), the lower was his satisfaction with the second item mentioned.

The nine significant negative correlations involved (*a*) "too heavy a workload" and 1) "challenging job problems" (−.18); 2) "use present knowledge and skill" (−.15); 3) "a wide variety of tasks and activities" (−.13); 4) "work that is important" (−.13); and 5) "good salary" (−.13) and (*b*) "feeling not fully qualified to handle my job" and 1) "congenial coworkers" (−.16); 2) "growing and learning new knowledge and skills" (−.15); 3) "using present knowledge and skills" (−.15); and 4) "challenging job problems" (−.15). Thus, the more the individual experienced each of these two occupational strains, the greater was his satisfaction with the corresponding job aspects.

The number of positive and negative correlations (and the number of each of these significantly different from zero) between each of the 14 occupational stress items and the 12 job satisfaction items is shown in Table 2. Nine of the 14 occupational stress items had only positive correlations with the job satisfaction items; one occupational stress item had six

TABLE 2
RELATIONSHIP OF OCCUPATIONAL STRESS MEASURES TO JOB SATISFACTION ITEMS AND INDEX

Item	Number of positive correlations	Number of negative correlations	Job satisfaction index	Measure of global job satisfaction
Too little job authority	12 (12)[a]	0	.40*	.48*
Unclear about job duties	12 (11)	0	.30*	.41*
Too much responsibility	1	11	−.06	−.00
Unclear about promotional opportunities	12 (12)	0	.37*	.35*
Too heavy a workload	0	12 (5)	−.17*	.02
Can't satisfy conflicting demands	6 (1)	6	−.03	.16*
Feeling not fully qualified	1	11 (4)	−.02	.12
Someone else may get the job I want	12 (8)	0	.09	.19*
Don't know where I stand with my boss	12 (10)	0	.24*	.29*
Can't influence decisions that affect me	12 (8)	0	.15*	.25*
Can't get information that I need	12 (5)	0	.14*	.24*
Slow job progress	12 (6)	0	.20*	.22*
Making decisions that affect the lives of others	1	11	−.02	−.04
Unreasonable pressure for performance	12 (3)	0	.16*	.16*

[a] Numbers in parentheses represent correlations significantly different from zero at the .05 level of confidence, two-tailed test.
* Correlation is significantly different from zero at the .05 level of confidence, two-tailed test.

positive and six negative correlations; and four occupational stress items had mainly negative correlations (three had 11 and one had all 12).

Occupational stress items having only positive correlations were (*a*) too little job authority, (*b*) unclear job duties and responsibilities, (*c*) unclear about promotional opportunities, (*d*) concern that someone else may get the higher job they want, (*e*) not knowing where they stand with their bosses, (*f*) being unable to influence decisions that affect them, (*g*) unable to get information they need to get the job done, (*h*) job progress slower than they think it should be and (*i*) feeling unreasonable pressure for improved job performance.

The occupational stress item, "can't satisfy conflicting demands of others," had six positive and six negative correlations. Occupational stress items having only negative correlations were (*a*) too much responsibility, (*b*) too heavy a workload, (*c*) feeling not fully qualified for the job, and (*d*) having to make decisions that affect the lives of others.

The relationship of each of the 14 occupational stress items to the job satisfaction index and to the global measure of job satisfaction is shown in the two right-hand columns of Table 2. With reference, first, to the job satisfaction index, nine of the correlations were significantly different from zero at the .05 level of confidence (eight positive, one negative) and four of the nonsignificant ones were negative. With reference to the correlations between each of the occupational stress items and the global measure of satisfaction, 10 correlations were significantly different from zero—and all were positive. Two of the four nonsignificant correlations were negative.

D. Conclusions

The data obtained in the present investigation indicated that the presence of specific occupational stresses, as well as the total amount of occupational stress, was significantly related to selected aspects of job satisfaction and to total job satisfaction. The correlation between the occupational stress index and the job satisfaction index was statistically significant. This conclusion is consistent with commonsense statements that occupational stresses of pressures are dysfunctional and undesirable.

When the relationships between specific occupational stress items and job satisfaction items were examined more closely, a somewhat more complicated situation emerged. First, there were a number of occupational stress items that related positively to each (or most) of the job satisfaction items and there was also a smaller number of occupational stress items that related negatively to each (or most) of the job satisfaction items (see right half of Table 2).

The nine items relating positively to job dissatisfaction had some common features. Some represented a lack of organizational support to an individual on a job (e.g., lack of information about job duties, promotional opportunities, standing with one's boss, lack of information needed to do the job properly). Others conveyed a sense of powerlessness or lack of control over the work situation (e.g., too little job authority, little influence with one's boss on his decisions that affect you). Another way to interpret these pressures is as factors that interfere with, or prevent, a person's doing his best job. Seashore (10) presented data from a national sample of wage-earners, which rather convincingly shows that the major complaints of these individuals involved obstacles in their work situations, which prevented them from doing an effective job. When only these nine occupational stress items were formed into an index, it correlated .40 with the job satisfaction index and .50 with the global measure of job satisfaction, increases of .14 and .10, respectively.

Let us now consider the four occupational stresses that were positively related to job satisfaction. Three of these are associated with a demanding, challenging job and/or high organizational expectations of the employee. These three are too much responsibility, too heavy a workload, and feeling not fully qualified. The first two relate closely to perceived task demands, the third relates more closely to a personal assessment of one's ability to meet these challenging task demands. An earlier study found these three items to load on a role overload factor (1). These three occupational stresses were particularly related in the present study to job situations, which provided opportunities for working on challenging problems, using present knowledge and skills (utilization), and growing and learning new knowledge and skills (development). The implication is that jobs that are enlarged or enriched may lead to increased satisfaction, but also to an increase in certain job pressures. Other data (6, 7, 8, 9) are consistent with this conclusion.

The fourth occupational stress that was positively related to job satisfaction involved making decisions that affect the lives of others. This is an actual characteristic of the jobs of some (or most) of the respondents; it is also related, in the present study, to having too heavy a workload.

When only these four occupational stress items were formed into an index, it correlated $-.21$ with the job satisfaction index and $-.03$ with the global measure of satisfaction. Thus, some occupational stresses are, indeed, functional for the individual employee. The remainder of the paper considers some uses stress serves and the kinds of occupational stress likely to be helpful.

There are individual, task, and organizational factors which are clearly related to the effects of job pressures on individual satisfaction and well-being. Let us consider each of these, in turn.

(a) Individual factors. If the individual feels he can control the occupational pressures because he has successfully done so in the past, he is much more likely to commit himself to and work harder toward higher goals to deal effectively with the pressures than in the individual accustomed to failure. He is also more likely to cope with the pressure if it is of his own making or results from his voluntarily taking it on. This stems from the fact that what he wants to do (internal commitment) and what he is being pressured to do (external forces) are congruent. The individual also will more likely experience satisfaction with the pressure if he has personal control over its reduction. If the individual feels he has no power to meet successfully the job pressures he is experiencing, he will feel hopelessly trapped.

(b) Task factors. The more the individual experiences pressures intrinsic to the task requirements of his job, the better he will understand the reasons for and the nature of these pressures. Receiving pressures directly from the work provides him with first-hand information. In addition, some of these pressures from the task itself operate to enrich and enlarge the job, thereby providing greater intrinsic motivation.

(c) Organizational factors. The amount and type of organizational support provided to the individual under pressure is important and mutual coping is functional. It can make a tremendous differences in the quality of a man's coping efforts if he feels that the organization is in there pitching with him, supporting him closely, and working just as hard as he is in solving the problem.

Job pressures are not all bad. Certain job pressures may be useful under most conditions (e.g., high but realistic performance goals, a heavy workload, quality workmanship). Other job pressures may be dysfunctional under most conditions (e.g., too little job authority, lack of information, conflicting job expectations). It is in the latter situation that the organization and one's colleagues can play a major supporting role. It would be in everyone's best interest to decrease those pressures that interfere with individual satisfaction and organizational performance and increase those pressures that facilitate individual satisfaction and growth and organization effectiveness.

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AFFECTIVE CONSEQUENCES OF DISCONFIRMING PERFORMANCE EXPECTATIONS*[1]

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SUMMARY

The study was designed to test the prediction from cognitive dissonance theory that persons who expect to perform poorly prefer poor performance to high performance and will perform poorly on trials subsequent to high performance feedback. Sixty-eight female undergraduates, primarily sophomores, enrolled in their first psychology course at Purdue University, participated in the experiment. Although the *S*s could choose the experiments in which they participated, as part of the course requirement all had to participate in five hours of experiments during the semester. *S*s performed several hidden word puzzles and received manipulated performance feedback on them. Both performance measures and subjective ratings were used to infer satisfaction with performance. The results showed no support for the dissonance interpretation. Previous studies on performance expectations were interpreted in light of a more parsimonious explanation of the data which does not require the assumption that poor performance is preferred to good performance.

A. INTRODUCTION

Cognitive dissonance theory states that disconfirmation of an expected state leads to negative affect (9). Aronson and Carlsmith (2) reasoned that in a performance setting the theory predicted the counterintuitive result that those who expected failure and subsequently succeeded would experience negative affect from their success. To test this assumption, *S*s were

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[2] Requests for reprints should be sent to the first author at the address shown at the end of this article.

given false performance feedback on a task allegedly measuring social sensitivity in order to create two groups—one group expecting to be successful due to four trials of success feedback and one group expecting to fail. After performance expectations had been established, one-half of the *S*s received feedback which contradicted their expectations. When subsequently given the opportunity to change their responses, both those who expected to succeed but failed and those who expected to fail but succeeded changed their responses more than those who received consistent feedback. Aronson and Carlsmith interpreted the changes in responses as consistent with dissonance theory. The most intriguing group to which this interpretation was applied was the one which contained *S*s who expected to fail but were told they succeeded. Aronson and Carlsmith interpreted the changes in responses as attempts by the *S*s to change responses in order to perform more poorly and in this way to reduce the feelings of dissonance.

This finding for the failure-success group and the authors' interpretation of it stimulated much interest and research. Unfortunately, the phenomenon proved difficult to replicate. Archibald (1) reviewed several studies related to the dissonance interpretation of performance expectancies and found two studies which replicated it (5), two partial replications (7, 22), and 10 failures to replicate (4, 6, 8, 10, 11, 13, 19, 20, 21, 23).

In addition to the difficulty of replication, the data were equivocal. First, it was assumed that the changes in performance for those with low performance expectations followed by high performance feedback indicated an attempt to perform *worse* on the part of the *S*s. However, for the task used by Aronson and Carlsmith (2), there were no right or wrong answers. Without any information about why the *S*s changed their responses, the alternative explanation that those who expected to do poorly and were told they performed well changed their responses in an attempt to do better cannot be ruled out. Zajonc and Brickman (23) criticized the dissonance studies related to performance effects for not using a task on which performance could be measured. They themselves used a reaction time task which did allow for a measure of actual performance. They were unable to replicate clearly the dissonance effect. However, Zajonc and Brickman (23) were primarily interested in the effects of feedback on performance, hence they did not replicate exactly the dissonance paradigm.

A second tenuous assumption of the research paradigm is that the performance expectations established on the first trials remained constant after the discrepant performance feedback was administered. As Archibald (1) put it, ". . . if learning that one succeeded when one expected to fail

produces dissonance, which has yet to be adequately demonstrated, it is not clear why one should prefer changing one's performance to changing one's expectations. In fact, one might find it difficult to justify such a preference, even to oneself" (p. 77).

It was the purpose of the present study to investigate the effect of confirmed or disconfirmed performance expectations on a task for which the direction of performance could be determined. In addition, the cognitive states inferred from behaviors were measured directly by subjective ratings. It was not assumed that subjective measures were necessarily better measures of cognitive states than the behavioral measures used in previous research, but it was believed that multiple measures based upon subjective ratings and less equivocal behavioral measures were necessary in order to infer the existence of dissonance state, as well as the motivational properties of that state as predicted by the theory.

B. Method

1. *Task*

A hidden word puzzle comprised the task for the experiment. The puzzles were 15 × 19 matrices of letters, within which were hidden 12 words related to some common concept. For example, it the concept were "trees," 12 names of trees, such as pine or oak, would appear beneath the matrix, and the same words would appear vertically, horizontally, or diagonally in either direction within the matrix of letters. Pilot work with the puzzles found them to be interesting and involving.

2. *Subjects*

Sixty-eight female undergraduate students enrolled in an introductory psychology class participated in the study as part of a course requirement.

3. *Procedure*

All participants in the experiment, after being informed of the nature of the puzzles, were told that they would be working on puzzles which were being tested for possible use in an intelligence test. Pilot work showed that the reference to an intelligence task was needed to increase involvement. The *S*s were then given a three minute practice trial, and they were instructed that they would be required to complete six 10-minute sets of puzzles, with two puzzles in each set. They also were informed that only if they found all the words in the first puzzle in a set could they begin work

on the second puzzle. To show how they were doing on the puzzles, the *S*s were told that following each set of two puzzles, the puzzles would be collected, and they would receive reports of their level of performance in relation to a previously tested sample of college students who had worked under the same conditions on the puzzles. Finally, *S*s were told that at certain times during the course of the experiment they would be asked to fill out a brief form concerning their performance on the sets.

After each of the first four sets (hereafter referred to as trials) the *E* "scored" the performance of each *S* and circled the "appropriate" level of performance on a card which was returned to her. Performance levels and their descriptions in relation to the "previously tested sample" were as follows: "High—above the 90th percentile," "Fairly high—60th to 80th percentile, "Average—40th to 60th percentile," "Fairly low—20th to 40th percentile," and "Low—below the 10th percentile." This feedback was administered independent of the *S*'s actual performance. Pilot work with the task showed *S*s did not doubt the performance feedback given to them.

Following the receipt of the performance feedback on each trial, *S*s were asked to rate their (*a*) satisfaction with their performance on the last trial, (*b*) the level of performance they expected on the next trial, and (*c*) the amount of effort they put forth on the trial they had just completed. These subjective ratings were obtained following performance feedback on each of the first four trials and following task performance on Trial 5. No performance feedback was administered on the last trial, Trial 5. Following the completion of the subjective ratings of Trial 5, *S*s were debriefed.

4. *Experimental Groups*

Three experimental groups were established. The first, the Success-Success group (*N*-17) received High performance feedback (above the 90th percentile) on all of the first four trials. The Failure-Failure group ($N = 17$) received Low feedback (below the 10th percentile) on all four trials. Finally, the Failure-Success ($N = 34$) group received Low feedback on Trials 1-3 and High performance feedback on Trial 4.[3]

5. *Dependent Variables*

As stated previously, measures were taken of satisfaction with performance on the last trial, perceived effort put forth on the trial, level of

[3] Only three of the four groups possible from a completely crossed, 2×2, design were run because the Success followed by Failure group was considered uninteresting. Dissonance predictions do not differ from any other predictions for this group.

performance expected on the next trial, and actual performance on the trial. Satisfaction with performance on the trial just completed was measured by a five point scale with the following five anchors: very dissatisfied, somewhat dissatisfied, neither satisfied nor dissatisfied, somewhat satisfied, and very satisfied. To measure perceived effort on the last trial, *S*s were asked, "Compared to the trial that came before this one, how much effort do you think you put forth on the trial you just completed?" Ratings were made on a five point scale ranging from "much more" to "much less" with a neutral point of "about the same amount." Scores were transformed to a base of about average effort in the following manner: expected performance on the next trial was rated by having the *S* select the level of performance she expected from the five performance levels described under the Procedure section of this paper. For all *S*s the first trial effort rating was considered to be three on the five point scale because, as asked, the effort question was meaningless for the first trial and was not included. If the *S* chose the response "somewhat more" on Trial 2, she received a score of 4 on the trial. If on Trial 3 she also chose "somewhat more," she received a score of 5 for the trial because she indicated an increase over the previous trial, which in turn had been higher than Trial 1. Similar transformations were conducted for all trials.

Performance on each trial was based on the number of words correctly discovered within the matrices. Since two matrices with 12 words each were presented on each trial, the performance score could range from 0 to 24. To correct for differences in puzzle difficulty across trials, all performance scores were standardized within trials.

C. Results

1. *Performance Expectation*

The analysis of variance and subsequent Newman-Keuls comparisons of performance expectations for the next trial showed that by the completion of the third trial (the last trial before discrepant feedback was administered) low and high performance expectations for the next trial had been established in line with the feedback. By the completion of Trial 3, a Newman-Keuls comparison showed that the expectations for the next trial (Trial 4) for the Success-Success group differed significantly from the Failure-Success and Failure-Failure groups ($p < .001$). Furthermore, the Failure-Success and the Failure-Failure groups did not differ from each other after three and, of course, should not have because they had received

TABLE 1
MEAN RATINGS OF PERFORMANCE EXPECTATIONS, PERCEIVED EFFORT, AND SATISFACTION WITH PERFORMANCE

Rating/Group	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
Performance expectations on next trial					
Success-Success		3.30	3.88	4.06	4.24
Failure-Success		2.44	2.12	1.88	2.53
Failure-Failure		2.59	2.35	1.82	1.65
Perceived effort					
Success-Success	3.00	3.71	4.18	4.88	5.29
Failure-Success	3.00	3.53	3.83	3.80	4.27
Failure-Failure	3.00	3.82	4.29	4.24	4.41
Satisfaction with performance					
Success-Success	3.53	4.41	4.35	4.24	4.12
Failure-Success	2.09	2.50	2.74	3.98	3.74
Failure-Failure	1.71	2.47	2.41	2.29	3.29

identical performance feedback up to this point (see Table 1 for mean values).

A final Newman-Keuls comparison showed that after receiving performance feedback which was discrepant from previous feedback, the performance expectations for the Failure-Success group were significantly higher than those of the Failure-Failure group ($p < .01$). This indicated that, at least for some *S*s, failure feedback followed by success feedback may have reduced the dissonance by raising expectations rather than lowering performance as Archibald (1) suggested.

2. *Perceived Effort*

Table 1 also presents the mean perceived effort ratings for the three experimental groups on each of the five trials. It will be recalled that effort scores were transformed to reflect cumulative increases in perceived effort.[4] The effort ratings of interest involved the change in perceived effort expended following the receipt of discrepant feedback on Trial 4. A one-way repeated measures ANOV across the five trials for the Failure-Success group produced a main effect for trials ($F = 14.94$, $df = 4/132$, $p < .01$) and the Newman-Keuls comparison of perceived effort on Trial 4 to Trial 5 showed a significant increase from Four to Five ($p < .01$). That is, those *S*s who were told that they had succeeded after they had received failure feedback for three trials, reported working harder on the trial immediately

[4] Raw scores for effort also were analyzed and yielded the same results. However, as mentioned in the Method section, transformed scores were considered a more appropriate interpretation of the effort rating.

following the success feedback than they had on the trial which had led to the successful feedback. Similar analyses for the Success-Success and the Failure-Failure groups found significant main effects for trials (for Success-Success, $F = 15.01$, $df = 4/64$, $p < .01$; for Failure-Failure, $F = 8.09$, $df = 4/64$, $p < .01$). However, there was no significant change in perceived effort between Trials 4 and 5 for these two groups.

3. *Performance*

Since performance scores were standardized within trials to control for differences in difficulty across trials, no across trials analyses were conducted over all groups. Within each of the three groups, tests were done comparing the performance on Trial 4 to that on Trial 5. No differences existed on these comparisons. Finally, a one-way ANOV was run for performance on Trial 5 and the three groups did not differ significantly in this analysis.

4. *Satisfaction*

A 5 × 3 ANOV showed a significant main effect for groups ($F = 70.31$, $df = 2/65$, $p < .001$), trials ($F = 13.28$, $df = 4/325$, $p < .001$), and a significant interaction ($F = 3.82$, $df = 8/325$, $p < .01$). Table 1 contains the cell means for this analysis. Newman-Keuls comparisons showed that the level of satisfaction for the Success-Success and the Failure-Failure groups did not change from Trial 3 to Trial 4. However, for the Failure-Success group satisfaction increased significantly ($p < .01$) when *S*s were told their performance had greatly improved. When comparisons were made across treatment groups, the Failure-Success and the Failure-Failure groups were significantly less satisfied than the Success-Success group as long as both failure groups received failure feedback. However, when Success feedback was administered to the Failure-Success group, this group's satisfaction jumped so that it was now significantly different from the Failure-Failure group ($p < .01$), but not significantly different from the Success-Success group. Interestingly, on the fifth trial when no performance feedback was administered, the Failure-Failure group increased its satisfaction significantly ($p < .01$).

D. Discussion

Cognitive dissonance theory, when applied to performance behavior, predicts that individuals will perform in line with their performance expectations. Furthermore, the theory states why they will perform in line with

their expectations: performance consistent with expectations is more pleasant than performance discrepant from expectation and the individual is motivated to maintain the most pleasant state. To support the viability of the theory in the area of performance motivation, it is not sufficient to show that performance tends to be consistent with expectations because other theoretical positions make the same predictions (e.g., Adaptation Level theory). It must also be shown that performance consistent with performance expectations is more pleasant than performance inconsistent with expectations.

The dissonance hypothesis that those who expect to perform poorly will be dissatisfied with good performance and in turn will be motivated to lower their performance clearly was not supported by the present study. Although the performance data did not support the dissonance prediction that disconfirmation of failure expectations would lead to a *decrease* in subsequent performance, neither did it support the opposite position that such a discrepancy should lead to an increase in performance.

However, the behavior measures used in dissonance experiments, such as those of Aronson and Carlsmith (2) or Cottrell (7), were defined as measures of an internal affective state resulting from the inconsistency of two cognitions. The present study measured the internal affective state not only with the behavioral performance measures but also with self-reports. The most direct self-report measures, that of satisfaction with performance, showed that, contrary to the dissonance prediction, those who had just received success feedback after expecting failure were significantly more satisfied with their performance than those who continued to receive failure feedback. In addition, a measure of perceived effort expenditure was consistent with the satisfaction data. On the trial following the discrepant feedback, the report of success to those who expected to fail influenced them to believe they were trying harder than they previously had been. This change in perceived effort did not occur in the consistent feedback groups. Presumably, on this task for which performance was closely related to effort, success feedback led those who expected to fail to try harder in hopes of continuing to do well. From the nature of the task it is extremely unlikely that they would believe they were trying harder in order to fail, since the most obvious way to lower performance was to decrease effort.

It might be argued that one study not supporting a given theoretical point of view should have little effect on a position as firmly held as the dissonance interprediction of performance inconsistencies if it were not for two factors. First of all, as was pointed out in the Introduction, attempts to

replicate the dissonance effect have been unsuccessful much more often than successful. Secondly, those studies which have produced the effect are subject to alternative explanations which, to us, seem more appealing. The frequent use of a task which did not allow for determination of actual performance makes the direction of the affect assumed from an observed change in answers on the problem a very tenuous assumption. It is just as reasonable to assume that this observed change implied an attempt to do even better than an attempt to do worse. In the former case, the implied affect associated with the disconfirmed state is positive rather than the negative one assumed by the *E*s.

A closer inspection of the frequency of changed responses in one of the attempted replications of the Aronson and Carlsmith (2) study raises further questions about the adequacy of the dissonance interpretation in performance setting. Cottrell (7) concluded his data supported the dissonance position because the two confirmed expectations groups (expected and received high performance feedback and expected and received low performance feedback) changed significantly fewer answers than the disconfirmed expectations groups (expected high and received low performance feedback and *vice versa*). However, this effect was due to the very small number of changes for the group which expected and received high performance. The small number of changes in this group masked the fact that *S*s having their poor performance expectations confirmed changed *more* answers than those who had their poor performance expectations disconfirmed. Aronson, Carlsmith, and Darley (3) pointed out that to observe little or no change from those who have high performance expectations confirmed is uninteresting; therefore, any support for the dissonance position based primarily upon this same group, as was the case in the Cottrell (7) data, should be weak at best.

The cognitive dissonance interpretation of performance motivation may have persisted as long as it has because it frequently has been invoked to explain the often observed phenomenon that those who expect to do well outperform those who expect to do poorly (1). For example, Korman's (12) data on the self-consistency model of performance motivation showed that those with high self-esteem perform better than those with low self-esteem. Korman argued that low performance is consistent with having a low self-esteem and, therefore, is more pleasant than high performance for the low self-esteem individual.

Although the observed lower performance among low self-esteem persons follows directly from the dissonance position, it is not necessary to

reach the much stronger dissonance conclusion that low performance is *wanted* or *preferred* to high performance. A much more parsimonious explanation for the lower performance is provided by the Level of Aspiration literature (14) or the goal setting literature (15, 16, 17, 18). In these cases it has been shown that lower performance expectations or goals influence the individual's performance motivation in a way that results in lower performance and a confirmation of his expectations. Any number of factors may contribute to this phenomenon. For example, if one holds low expectations, then low performance may not be as unpleasant as if one holds high expectations. Yet with neither goals nor Aspiration Levels is it necessary to assume that if given a choice between actually performing very well or very poorly, the individual will *prefer* to perform poorly. Such an assumption is necessary with a cognitive dissonance explanation.

Thus, even those studies usually cited as support for the dissonance effect on performance did not require the strong assumption of preferring low performance over high performance in order to explain the results. In view of this, as well as lack of support from the studies designed to demonstrate cognitive dissonance effects on performance motivation, and in view of the existence of more parsimonious explanations for observed consistencies in performance for individuals, it no longer seems reasonable to consider dissonance reduction as a viable explanation for the behavior of persons in performance settings.

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ANONYMITY AND GROUP ANTISOCIAL BEHAVIOR*

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SUMMARY

According to the anonymity explanation of group antisocial behavior, group membership facilitates antisocial behavior because individuals feel more anonymous in groups than alone. This explanation was tested under three hypotheses: (*a*) group membership facilitates antisocial behavior, (*b*) group membership causes feelings of anonymity, and (*c*) anonymity facilitates antisocial behavior. Sixteen men and 10 women from an introductory personality course at Western Illinois University were asked to state how willing they were to engage in an antisocial behavior (carrying a sign reading, "masturbation is fun") under four conditions: alone, undisguised; alone, disguised; in a group, undisguised; and in a group, disguised. *S*s were more willing to carry the signs in groups than alone and disguised than undisguised. They also stated that they felt that they would be more anonymous in a group than alone and disguised than undisguised. All differences were statistically significant. Support was thus found for the three hypotheses, and it was concluded that anonymity is an explanation of group antisocial behavior.

A. INTRODUCTION

Although diffusion of responsibility has been the most frequently cited explanation of group antisocial behavior (2, 3, 6, 7, 8, 10, 11, 12, 13), another frequently given explanation is anonymity (2, 4, 9, 13). According to the anonymity explanation, the individual who engages in antisocial behavior with others feels that he is less likely to be noticed and remem-

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[1] The authors would like to thank Ben Wallace for his helpful comments on this manuscript. Requests for reprints should be sent to the first author at the address shown at the end of this article.

bered by people who might wish to punish his behavior than if he engages in the behavior alone. This belief facilitates the antisocial behavior of the individual who finds himself in the company of others engaging in similar antisocial behaviors. Group membership serves the same protective function as the bandit's mask or the cover of night.

In order to provide good empirical support for the anonymity explanation it is necessary to demonstrate three things: (*a*) group membership facilitates antisocial behavior, (*b*) group membership causes anonymity, and (*c*) anonymity facilitates antisocial behavior. So far only one of these relationships (*c*) has been demonstrated. Festinger *et al.* (4) have shown that antisocial behavior is positively correlated with feelings of anonymity, and Singer *et al.* (9) and Zimbardo (13) have shown that *S*s who are disguised engage in more antisocial behavior than *S*s who are not disguised. Although Wallach and his associates (e.g., 10) felt that the risky shift phenomena demonstrated that group membership facilitates antisocial behavior, subsequent research has shown that being risky is more socially desirable than being cautious (5). The only research which comes close to demonstrating that group membership facilitates antisocial behavior is the bystander apathy research (3), and it is questionable whether failing to help is comparable to most antisocial behavior which is more active in nature. No one seems to have shown that group membership produces anonymity. The purpose of the experiment described below was to provide a good empirical basis for the anonymity explanation by replicating the finding that anonymity facilitates antisocial behavior, demonstrating that group membership facilitates an active kind of antisocial behavior, and showing that group membership causes anonymity.

The experiment was a 2 × 2 factorial in which *S*s were asked how willing they were to engage in antisocial behavior under four conditions, undisguised and alone, undisguised and in a group, disguised and alone, disguised and in a group, and how anonymous they felt they would be under each of the conditions. Three predictions were made:

1. *S*s would be more willing to engage in antisocial behavior in a group than alone.
2. *S*s would feel more anonymous in a group than alone.
3. *S*s would be more willing to engage in antisocial behavior disguised (anonymous) than undisguised.

Support for these three predictions would place the anonymity explanation on solid empirical ground.

B. Method

1. *Subjects*

Sixteen men and 10 women from an introductory personality course at Western Illinois University participated in this experiment. For participating, *S*s received points toward their final grades.

2. *Procedure*

The experiment was carried out by the first author during one of his introductory personality classes. He told his class that he was going to carry out an experiment on observer response to deviant behavior and that he hoped to hire some of the members of his class as confederates. He explained that the confederates would carry signs stating "masturbation is fun" through the student union cafeteria so that observers could be interviewed concerning their reactions to the sign carriers. He explained that four conditions would be created and that they would involve (*a*) a single sign carrier, (*b*) a group of 10 sign carriers, (*c*) a single disguised sign carrier, and (*d*) a group of 10 disguised sign carriers. The *E* then showed the *S*s examples of the signs and disguises that would be used. The sign consisted of a piece of white cardboard, approximately one by three feet, with a wooden handle. The slogan, "masturbation is fun," was printed on the cardboard in black letters approximately three inches tall. The disguise consisted of a knitted ski mask which covered the whole head, leaving only the eyes exposed, and a set of coveralls.

The *E* then passed out forms which asked *S*s how willing they would be to participate in each of the conditions and the minimum amount of money they would require to participate in each of the conditions. The *E* explained that he would hire the students asking the smallest amounts of money and pay them with university funds. The forms also contained a question concerning anonymity. Willingness to engage in the antisocial behavior was measured by both the willingness and money questions. It was felt that the money question would provide a behavioroid measure of willingness (1).

The form was composed of four pages, one page for each condition. The questions for the undisguised, alone condition were the following:

1. Are you willing to walk across the cafeteria of the union, *alone,* carrying a sign reading "masturbation is fun?"

2. Regardless of your answer to Question 1, how much money do you

feel you should be paid to walk across the cafeteria of the union, *alone*, carrying a sign reading "masturbation is fun?"

3. If you did the above, do you think people would recognize you?

Responses to Questions 1 and 3 were made on seven point scales ranging from "no, definitely" to "yes, definitely." The questions on the other three pages were similar to those on this page except that they applied to the other three conditions. The pages were combined into questionnaires in four different random orders.

After the forms were completed, the *S*s were debriefed. During the debriefing, *S*s were asked whether they were suspicious of any of the manipulations and what they thought the hypotheses were that had been tested. Although several *S*s were suspicious, only three *S*s guessed one of the hypotheses (that group membership facilitates antisocial behavior). No *S*'s data were eliminated from the analyses.[2]

C. Results

Responses to each of the three questionnaire items were initially analyzed by means of $2 \times 2 \times 2$ analyses of variance. The independent variables were Sex of Subject (male, female), Disguise (yes, no), and Group Membership (yes, no). Since no significant main effects or interactions were found for Sex of Subject, the results were reanalyzed as 2×2 (Disguise $\times$ Group Membership) within subjects analyses of variance. The results reported in this paper are of the 2×2 analyses. For Question 1, which asked *S*s how willing they were to participate in each of the four experimental conditions, main effects were found for Disguise ($F = 25.53$, $df = 1/25$, $p = .0001$) and Group Membership ($F = 22.31$, $df = 1/25$, $p = .0002$). *S*s were more willing to carry signs, disguised ($\overline{X} = 4.42$) than undisguised ($\overline{X} = 3.29$) and in a group ($\overline{X} = 4.40$) than alone ($\overline{X} = 3.31$). The interaction was not significant ($F = 2.41$, $df = 1/25$, $p = .13$).

For Question 2, which asked *S*s how much money they would require to participate in each of the four experimental conditions, main effects were found for Disguise ($F = 4.36$, $df = 1/25$, $p = .04$) and Group Membership ($F = 5.69$, $df = 1/25$, $p = .02$). *S*s required more money to carry signs undisguised ($\overline{X} = \$47.92$) than disguised ($\overline{X} = \$29.98$) and alone ($\overline{X} = \$50.29$) than in a group ($\overline{X} = \$27.61$). Although the interaction was not significant ($F = 2.02$, $df = 1/25$, $p = .16$), a Newman-Keuls analysis of the

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[2] Analyses performed on only the data of the *S*s who were not suspicious produced results similar to those obtained when the data of all of the *S*s were analyzed.

means showed that when not disguised, *S*s required significantly ($p < .05$) more money to carry the sign alone ($\overline{X}$ = \$64.61) than in a group ($\overline{X}$ = \$31.23), but that when disguised, *S*s did not require significantly more money to carry the sign alone ($\overline{X}$ = \$35.96) than in a group ($\overline{X}$ = \$24.00).

For Question 3, which asked *S*s the extent to which they felt they would be recognized under the four experimental conditions, main effects were found for Disguise ($F = 52.32$, $df = 1/25$, $p = .0001$) and Group Membership ($F = 9.63$, $df = 1/25$, $p = .005$). *S*s stated that they would be more recognizable undisguised ($\overline{X}$ = 5.79) than disguised ($\overline{X}$ = 2.73) and alone ($\overline{X}$ = 4.46) than in a group ($\overline{X}$ = 4.06). The interaction was not significant ($F < 1$).

D. Discussion

In the Introduction it was pointed out that in order to provide good empirical support for the anonymity explanation, three things must be demonstrated: (*a*) group membership facilitates antisocial behavior, (*b*) group membership causes anonymity, and (*c*) anonymity facilitates antisocial behavior. This experiment demonstrated all three relationships. Replicating the Singer *et al.* (9) and Zimbardo (13) results, this experiment showed that anonymity (disguise) facilitates antisocial behavior. It went beyond these studies, however, to show that group membership facilitates antisocial behavior and causes anonymity. *S*s were more willing to carry the signs and asked for less money to carry them when they were promised disguises than when they were not promised disguises. They were more willing to carry the signs and asked for less money to carry the signs when they knew that they were going to carry the signs in a group rather than alone. Finally, they felt that they would be less recognizable if they carried the signs in a group than alone.

The fact that group membership made a difference concerning pay for undisguised *S*s but not disguised *S*s can be interpreted in terms of the anonymity hypothesis. Possibly, anonymity provided by the disguise was so adequate that the anonymity added to it by group membership was not enough to cause a further reduction in pay demanded. On the other hand, without the disguise, the anonymity provided by group membership was of considerable benefit and resulted in a significant reduction in pay demanded.

An alternative explanation of these results might be the diffusion of responsibility: group membership facilitates antisocial behavior because people in groups feel less responsible for their behavior. Although such diffusion can explain the main effect of Group Membership on willingness

to engage in the antisocial behavior and pay demanded for such behavior, it cannot explain the main effect of Group Membership on recognizability. Furthermore, in the present experiment the *E* assumed the major portion of the responsibility for the antisocial behavior, making diffusion of responsibility unnecessary. It seems that the anonymity explanation fits the data better than the diffusion of responsibility explanation.

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THE EFFECTS OF EXPERIMENTALLY INDUCED ILLUSIONS OF INVULNERABILITY AND VULNERABILITY ON DECISIONAL RISK TAKING IN TRIADS*[1]

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SUMMARY

It was hypothesized that groups which perceive themselves as highly effective decision makers (invulnerable) will make more risky decisions than control groups (no illusions). It was also hypothesized that groups which perceive themselves as ineffective decision makers (vulnerable) will make more conservative decisions than the control groups. *S*s were 63 undergraduate students (25 males, 38 females). Imaginary results of two bogus questionnaires were used to manipulate the groups' perception of their problem solving abilities. The Kogan and Wallach choice dilemma questionnaire was used to measure risk or conservative group decisions. Groups in the invulnerable condition had the highest mean risk scores, followed by control groups, while those in the vulnerable condition showed the lowest mean risk scores ($p < .03$). The results support the idea that group decision making abilities can become more risky or conservative by manipulating the groups' perception of those abilities.

A. INTRODUCTION

In his psychological study of political fiascos, Janis (4) describes various characteristics of group interactions that lead to defective decision making. Janis labeled this defective group decision making as the groupthink syndrome. One of the aspects of groupthink is the illusion of invulnerability. This is defined by Janis (4, pp. 197-198) as an illusion which ". . . creates

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excessive optimism and encourages taking extreme risks." One purpose of the present study is to examine the perception of effective group decision making as a factor that may affect the development of the illusion of invulnerability.

An illusion counter to that of invulnerability could result from a group's perception of their ineffectiveness as decision makers. This perception by group members that the group might be reaching a defective or incorrect decision is labeled by the authors as the illusion of vulnerability. Since the illusion of vulnerability is opposite to the illusion of invulnerability, then those who perceive themselves as ineffective decision makers should make less risky decisions than those who see themselves as invulnerable in their decision making.

This study is concerned with the perceived situational variables which determine differences in group decision making, and not with individual shifts of choice in decisions after group discussions. It is specifically hypothesized that groups which are led to believe that they are highly effective decision makers (invulnerable) will make decisions that are more risky than control groups which are not provided information about their decision making abilities. Likewise, it is hypothesized that groups which believe they are ineffective decision makers (vulnerable) will make more conservative decisions than control groups which are uninformed about their decision making abilities.

B. Method

1. *Subjects*

Participants were 63 (25 males, 38 females) undergraduate students enrolled in the introductory and physiological psychology courses. The *Ss* were randomly assigned to three-person groups, and these were then randomly assigned to each of the three experimental conditions (seven invulnerable groups, seven vulnerable groups, and seven no-illusion groups).

2. *Materials*

Measurements of tendencies toward risk or conservatism were taken from the Kogan and Wallach (5) choice dilemma questionnaire. This instrument depicts 12 hypothetical situations in which a fictional character must choose between a high risk or a low risk course of action. Students were asked to indicate the lowest odds for success (1, 3, 5, 7, 9, or 10 out of

10) that they would consider acceptable in advising the fictitious person to attempt the risky alternative.

3. *Procedure*

One to four groups participated in the experiment at any given test time. During the first portion of the experiment *S*s completed a 74-item college student attitude questionnaire.[4] Items on this questionnaire consisted of statements of attitude, such as "I would never get a divorce" or "It is bad to raise taxes." An *S* indicated, on a scale of one to seven, the degree of agreement with the statement. *S*s were later told that their responses to the questionnaire were indicative of their group problem solving abilities. The students' actual responses were ignored.

Immediately upon completion of the attitude questionnaire, the students were assigned to their respective groups which had an initial interaction period. Each group member was given one copy of a bogus group problem solving questionnaire with one answer sheet per group.[5] This bogus questionnaire consisted of six items, depicting hypothetical dilemmas similar to those found on the choice dilemma questionnaire. Another item asked the *S* to rank eight phrases as to their importance. The other three items were short problems in logic, in which the *S*s had to search for a solution from the given data.

Upon completion of the bogus decision questionnaire, or upon the expiration of a 30-minute time period, each group was dismissed until a prearranged appointment time, two days later. The appointment times were arranged so that groups in the control condition were tested either in isolation or with other groups in the control condition. In the second session, groups in each condition were presented with the Kogan and Wallach (5) choice dilemma questionnaire, complete with the standard written instructions. Groups in the control (no illusion) condition were told to read the written instructions to the questionnaire and to come to a unanimous decision on the choice of an answer.

After being isolated, groups in the invulnerability condition were then given the same initial information that the control groups were presented. In addition, they were told that their responses to the group problem

[4] Unpublished questionnaire, 1974, available on request to second author at the address shown at the end of this article.

[5] Unpublished questionnaire, 1974, available on request to second author at the address shown at the end of this article.

solving questionnaire and the attitude questionnaire indicated that they would work together extremely well and would make near perfect decisions.

After being isolated, groups in the vulnerable condition were given the same initial information as the control groups. However, they were told that their responses to the two previous questionnaires indicated that they were error prone in their decision making and therefore would not work well together.

Upon completion of the choice questionnaire, each *S* was thoroughly debriefed as to the purpose of the experiment, and the methodology used.

C. Results

On a six-point scale (1 = highest risk to 6 = lowest risk), groups in the invulnerable condition had the highest mean risk scores ($\overline{X} = 3.08$), followed by groups in the control condition ($\overline{X} = 3.56$), with groups in the vulnerable condition showing the lowest mean risk score of the three conditions ($\overline{X} = 3.83$). A one-way analysis of variance yielded $F = 4.18$ ($df = 2,18$; $p < .03$). A Newman-Keuls test indicated that the significant difference was between the invulnerable and vulnerable conditions.

Responses on each of the decision items were categorized as being either risky responses, neutral responses, or conservative responses. Statements of probability of one or three out of 10 were considered risky decisions; probability statements of five or seven out of 10 were considered neutral statements; while probability statements of nine or 10 out of 10 were considered conservative statements. Table 1 contains the frequence of

TABLE 1
Frequency of Responses to Dilemma Items

Decision	Invulnerability	Illusion of control	Vulnerability
Risky	37	22	18
Neutral	32	40	39
Conservative	15	22	27

occurrence for each of these categories. The distribution of risky responses is different from chance ($\chi^2 = 7.82$, $df = 1$, $p < .01$) while the neutral responses are not significantly different from chance ($\chi^2 = 1.03$, $df = 1$, $p > .05$). The response distributions for conservative decisions are marginally significant in the predicted direction ($\chi^2 = 3.41$, $df = 1$, $p < .07$).

D. Discussion

The results of the present study confirm the hypotheses that groups under the illusion of invulnerability made more decisions in the risky direction, while those groups under the illusions of vulnerability made more conservative decisions. The degree of decisional risk taking by the no-illusion (control) groups was intermediate, while the groups induced with the illusion of vulnerability tended to make the least risky decisions in comparison with the other groups.

The manipulation of perceived effectiveness of group decision making in this study is somewhat similar to the manipulation of group cohesiveness by Dion *et al.* (3) and thus the results of this study might be comparable to their findings. The results of the Dion *et al.* (3) study indicate that high group cohesiveness depressed the phenomenon of increased risk taking, a finding opposite to the results of this study. It is possible that group cohesiveness and perceived effectiveness of group decision making abilities are related variables which produce somewhat opposite results in terms of decisional risk taking in groups.

This study is not concerned with individual shifts in risk, but with the situational variables that enhance or depress risky decision making by groups. As Cartwright (1, 2) has noted, choice dilemmas could be constructed to give group decisions that shift to more conservative positions. However, if the group sees its decision making abilities as relatively invulnerable to mistakes, these decisions might be less conservative than if no illusion existed. This view is supported by the results of the present study in which one group made more risky decisions; another, more conservative decisions on the same items; while the control group made predominately neutral responses.

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EFFECTS OF SOCIAL SATIATION ON EFFICACY OF SOCIAL AND NONSOCIAL REINFORCERS*

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SUMMARY

The social deprivation-satiation effect is interpreted in terms of the perceived contingencies of the *S-E* interaction and the attributions made by *S* on that basis. According to this interpretation, the children are satiated with *E* and not with the stimuli. It was predicted that satiation with social stimuli would affect to the same degree performance for social and nonsocial reinforcers. Middle-class second-grade boys and girls ($N = 40$) were subjected to a 10-minute satiation treatment, in which the stimulus word *Yafeh* ("Good" in Hebrew) was emitted by *E* two or 20 times. The treatment was followed by a 75-item binary discrimination task, in which correct responses were reinforced either with *Yafeh* or with a plastic token. A significant satiation effect was found for both social and nonsocial reinforcement. These results are in conflict with other studies reporting no social satiation effect for nonsocial reinforcement. In these studies the nonsocial reinforcement was not administered by *E*, but dispensed by a machine, while in the present study the nonsocial reinforcement was directly given by *E*. Thus, both sets of results confirm the suggested theory.

A. INTRODUCTION

Gewirtz and Baer (10, 11) showed that social deprivation, via isolation techniques, affects children's subsequent performance for social reinforcers. This effect, according to them, is mediated by "drive conditions" caused by these manipulations.

While Gewirtz and Baer's findings have been generally accepted, their social drive theory has been questioned by several investigators, who have sought to dispute, or at least qualify the theory. Walters and Ray (18) and Walters and Parke (17) proposed an arousal (anxiety) interpretation, while

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Stevenson and Odom (16) and Hill and Stevenson (12) suggested a sensory deprivation hypothesis to account for the isolation effect. Several investigators [Erickson (6); Dorwart, Ezerman, Lewis, and Rosenhan (4); Rosenhan (15); and Endo (5)] studied the generality of the "social drive" by examining the effects of social deprivation and satiation on efficacy of social and nonsocial reinforcers. They claimed that the social drive manipulations affected subsequent behaviors only for social reinforcers, but not for nonsocial reinforcers.

Gewirtz's (7, 8, 14) more recent approach renders these above mentioned studies somewhat obsolete, since he changed both his theoretical conception and his actual experimental procedures. Isolation is no longer used to create deprivation. Instead, a social stimulus is dispensed at varying quantities during a standard treatment period. Thus, the focus has shifted from deprivation (i.e., isolation) to satiation, the varying levels of stimulus presentation conceived as levels of satiation. The satiation effect is typified by decreased levels of performance following satiation rather than increased levels following deprivation. Gewirtz abandoned the social drive theory and discussed his findings in terms of a functional (inverse) relationship between social stimulus availability and its subsequent efficacy in a reinforcing role. In the memorial symposium for the late R. H. Walters, Gewirtz (9) expressed his regret at having used the social drive terminology ("we did so to provide historical context to our results"), claiming that he and Baer have always had in mind a functional relationship, with no intervening variables.

Babad (1) tried to explicate the social satiation effect from the child's point of view. He shifted the focus of the interpretation from stimuli in their various roles to the *source* of these stimuli (E) and to the meaning attributed to E's behavior by the children. In line with Jones and Davis' (13) ideas on interaction contingencies and the attribution of intention, Babad viewed the treatment session as a dyadic interpersonal interaction, where S derives information about E's "nature" and the (perceived) contingencies of the interaction, makes inferences, and reaches a judgment of E's reinforcement value for him.

A satiating E emits social stimuli at such a high rate that it is impossible for the child to identify what there is in *his own* behavior which triggers such an overflow. The child, therefore, reaches the conclusion that it is something in E's nature that makes him emit these stimuli. Since the child lacks the sense of contingency between behavior and reinforcement, E's reinforcement carries but little potential for changing his behavior. A

depriving *E*, on the other hand, creates the impression that his nature is to *not* reinforce, and his infrequent emission of social stimuli is inferred by the child to be contingent upon particular actions of his own. (The actual frequency of emission in a deprivation treatment is too low to allow the child to actually test the contingencies.) *E*'s reinforcement thus acquires a high potential for influencing *S*'s behavior.

In a study designed to test his conceptualization, Babad (2) found the social satiation effect to be person-specific, not readily generalizable from one *E* to another. The difference in discrimination-test performance between deprivation and satiation groups dropped sharply when the test was not administered by the treating *E*. In another study (3) *S*s received information about *E*'s reinforcement habit prior to the actual deprivation and satiation treatments. This informational input was designed to parallel the information assumed to be derived by the children from actual treatments. Babad found that a deprivaton-satiation like effect was produced by informational input alone, and that the information interacted with, and modified, the effects of the actual treatments on subsequent performance.

If indeed the child is "satiated" with the person of his *E*, it should make no difference what kind of reinforcement *E* uses. The children should show the same pattern of performance (i.e., difference between deprivation and satiation groups) when reinforced in the test with social or nonsocial stimuli, *as long as they perceive these reinforcing stimuli to be directly dispensed by* E.

B. Method

1. *Subjects*

*S*s were 40 children in second-grade classes of a Jerusalem school. All *S*s came from middle- and upper-middle-class homes. The number of *S*s in each experimental group was 10, five boys and five girls. The four experimental groups were deprivation-social, deprivation-nonsocial, satiation-social, and satiation-nonsocial. *E* was a female graduate student in her mid-twenties. She was well trained and explicitly warned not to deviate from the procedure. Moreover, suspicion of *E* bias in the direction of our hypothesis was ruled out by the fact that *E* held an hypothesis opposed to ours.

2. *Procedure*

Each child was brought by *E* to the experimental room (a vacant office), where he was seated at a table. On the table were several books and

magazines and a pack of orange cards. *E* said: "I want to show you a game with these cards, but first I have to finish some paperwork. You can read these books and magazines while I work." During the next 10 minutes *E* pretended to be busy with paperwork, but emitted the stimulus word *Yafeh* ("Good" in Hebrew) a given number of times at set intervals. In deprivation treatment the stimulus word was emitted twice during the 10-minute period. In satiation treatment the word was emitted 20 times. Care was taken that emission would not be contingent upon any specific activity of *S* (such as turning a page), and *E* voiced the word *Yafeh* in a slightly impersonal manner, avoiding eye contact with *S*.

After the 10-minute period was over, *E* administered the discrimination test to *S*. Seventy-eight orange cards were used in the test, two pictures on each. The pictures showed (in randomized positions) one plant and one animal. The instructions were as follows: "On each card you will find two pictures. I want you to choose one of them, and point to the one you choose. O.K.? Let's start." The first three cards were used to determine *S*'s preferred choice, and the picture chosen on the minority of these trials (plant or animal) was reinforced from the fourth trial on. In the social reinforcer condition, each correct response was reinforced with *Yafeh*. In the nonsocial reinforcer condition, *E* gave the child a plastic token following each correct response without any explanation. The dependent variable was the number of correct responses in the discrimination task.

C. Results

The number of correct responses in the 75-trial test for the four experimental groups was subjected to an analysis of variance. The results of the 2 × 2 analysis showed a significant treatment (deprivation-satiation) effect ($F_{1,36} = 69.3, p < .001$), but no significant effects for the type of reinforcement (social-nonsocial) used in the test and the Treatment × Reinforcement interaction. The pattern of the results confirms our hypothesis: a typical deprivation-satiation effect (i.e., about 25-point differences in the 75-trial test) was found for groups receiving social *and* nonsocial reinforcement. The two deprivation-satiation lines were parallel, and the distance between the line for social reinforcement and the line for nonsocial reinforcement was negligible.[1] No differences were found between boys and girls.

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[1] Since our hypothesis is in a sense a null hypothesis (predicting the absence of a main effect for type of stimuli and of an interaction effect), we also computed *t* tests comparing deprivation and satiation groups for each type of reinforcer. Both *t* tests yield a highly significant difference between deprivation and satiation groups ($t_{18} = 4.86, p < .001$, for the nonsocial reinforcer, and $t_{18} = 8.43, p < .001$ for the social reinforcer).

Our research hypothesis is thus confirmed by the data. Levels of satiation of social stimuli affected to almost the same degree performance for social and nonsocial reinforcers. A typical satiation effect was found for the nonsocial reinforcer, in spite of the fact that the children were "satiated" only with social stimuli.

D. Discussion

In light of the present findings and the previous Babad studies, we may conclude that the childen were neither in a "deprived" nor a "satiated" *motivational state,* nor were they satiated with the *stimuli*. The children were "satiated" with *E*. Their performance was influenced by the meaning they attributed to *E*'s behavior, and by the subjective sense of contingency between their own behavior and her responses.

Our results are in conflict with Erickson (6), Dorwart *et al.* (4), Rosenhan (15), and Endo (5) who found no effect for nonsocial reinforcement. In scrutinizing their procedures, we find that both Rosenhan and Endo defined deprivation in terms of isolation, so that *E* was absent during the treatment. Dorwart *et al.* defined deprivation in terms of the nature of a three-minute conversation between *E* and *S*. Neither method gives opportunity for the development of the type of inferences which we hypothesize *S*s make in deprivation and satiation treatments. Furthermore, reinforcer efficacy was tested in these studies with a probability learning task, where it is difficult to distinguish performance from learning. Binary discrimination, on the other hand, is a clear performance task.

The conflict with Erickson's results poses more of a problem, since she created levels of satiation by varying the number of social stimulus presentations in a standard treatment period, and she used a binary discrimination task to test reinforcer efficacy. However, her study has one crucial feature in common with the three other studies: the nonsocial reinforcement was not administered by *E,* but was "automatically" dispensed by a machine. There was no obvious link between *E* and the machine dispensing the stimuli. Erickson reports that *E* was not even visible to the *S*s during the test. In our design, *E* was clearly perceived by the children to dispense the nonsocial reinforcement. If the children do not perceive the nonsocial reinforcement as coming from *E,* according to our theory there is no reason to expect that their behavior will be influenced by their previous interaction with *E*. Therefore, no deprivation-satiation pattern should be expected for machine-dispensed reinforcement. In a sense, then, the proposed conceptualization is validated by both the results of the present study and by the seemingly contradictory results of Erickson's study.

Readers with a cross-cultural orientation might wonder whether a cultural difference between American and Israeli children might not account for the difference between Erickson's and our results. We have no direct empirical data relevant to the present design which would confirm or dispute this notion, but we consider the cross-cultural source of variance highly improbable. Gewirtz *and* Babad have conducted their satiation experiments both in the U.S. and Israel, and there has never been any hint of a cross-cultural difference in any variable under investigation. On the other hand, the procedural (and conceptual) difference between machine-dispensed and *E*-dispensed reinforcement seems a very compelling source of variation.

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ACQUAINTANCE LINKS BETWEEN RESIDENTS OF A HIGH RISE BUILDING: AN APPLICATION OF THE "SMALL WORLD" METHOD*[1]

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SUMMARY

Milgram's "small world" method was adapted to trace the acquaintance pattern of residents in a high-rise complex. Seventeen residents were given chain-booklets, with instructions to advance these through their social networks in the building. Six chains progressed beyond the "starter," and the pattern of their circulation was consistent with the hypothesis that proximity is a major determinant of social interaction in high-rise settings.

A. INTRODUCTION

The "small world" method was developed by Milgram (3) to trace social networks. The technique derives its name from the "small world problem" [Ithiel Pool, cited in C. Rand (5)], or the nature of the kinship and acquaintance bonds which link people into complex networks. The most general formulation of the small world problem is concerned with the probability of any two people in the world knowing each other. In operational terms, however, the research question that Milgram has investigated relates to how many intermediate acquaintance links are needed before any two individuals in the world are connected. When asked to consider this problem, people intuitively guess that it might take about 100 steps or more (4). In actuality, as measured by the Milgram technique in studies conducted across the United States, the average number of intermediaries is only 5.5, hence the term "small world."

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[1] We are grateful to the New South Wales Housing Commission for their cooperation and assistance with this project.

[2] Based on a paper read at the Ninth Annual Conference of the Australian Psychological Society in Perth, Western Australia, August 1974. Requests for reprints should be directed to the first author at the address shown at the end of this article.

The small world technique consists of providing a person in a "starting population" with a limited description of a given "target person." Usually, details about the target individual are restricted to his name, address, occupation, and sex, but any other information relevant to the aims of the particular experiment can be included. The starter and target person are not acquainted with each other, and may be separated in distance by thousands of miles.

The "starter" has the task of advancing a booklet toward the target person. He is instructed to do this by forwarding the booklet to a personal acquaintance whom the starter considers is more likely than himself to know the target. The friend in turn repeats this process, and the booklet is advanced through the chain until it reaches the target. The starter and subsequent intermediary persons must pass the booklet on only to persons whom they know on a first-name basis. Finally, the booklet designed by Milgram contained detachable, coded business reply postcards, which provided continuous feedback on the progress of each chain. At each step in the sequence, *S*s detached a postcard, and filled in their own and the next person's name, address, occupation, age, and sex, before mailing the cards to the *E*.

Milgram's device thus possesses some of the features of a chain letter, although it does not pyramid; it can be directed toward a specific goal, on which it converges through the cooperation of a sequence of participants, and contains a tracer that enables the *E* to keep track of the booklet. Consequently, the procedure permits a variety of experimental manipulations. The instrument is reproduced in full in Milgram (4, pp. 110-111). The dependent variables elicited by the procedure have included the number of links in the chain, the funelling of chains through a limited number of channels, and the characteristics of the gatekeepers on whom the channels converge; the independent variables have included the race of the target person, the distance between the starter and his target, and the occupation, sex, and age of the participants (2, 3, 4, 8).

In the present study Milgram's procedure was modified in one significant way. Milgram's primary interest has always been to determine how small the world is: i.e., what are the fewest links that connect people under various experimental conditions. However, the present experiment had the opposite aim of gauging the extent of a particular circle of acquaintances—how big a person's social world is under specific experimental conditions. Two modifications were made; the chain of transactions was confined to occupants of flats in the building being studied; and the

target person, who was described as a neighborhood resident, was placed outside the building and was in fact nonexistent. These modifications had the effect of maximizing the circulation of the booklet within the building and extending the chain to its theoretical upper limits, in contrast to Milgram's procedure, which aims to establish the theoretical minimum number of links in the acquaintance chain of his *S*s.

B. Method

1. *Overview*

The proximity hypothesis of acquaintance links was tested by exploiting the modular design of the experimental building. Residents in the block were asked to deliver a booklet to a target person outside the building. If *S*s did not know the target person, they were instructed to take the booklet to another resident in the building whom they knew on a first-name basis, and ask this second person to take over delivery of the booklet to the target person. Since the target person did not exist, the experimental induction set up a self-perpetuating chain that continued until a particular *S* either did not know anyone on a first-name basis in the building, or refused to cooperate. The booklet contained 15 stamped postcards addressed to the senior author. *S*s detached and posted a card each time the booklet changed hands, writing their own name and address, and that of the person to whom the booklet was transferred, in spaces provided for that purpose.

2. *The Booklet*

The booklet, measuring 20 cm × 10 cm, had a green cardboard cover on which there appeared the university crest, the title "Social Communications Project," and the legend "University of New South Wales." Inside the booklet there were four pages of instructions. Page 1 reads as follows: HOW TO TAKE PART IN THIS STUDY. We need your help in carrying out a study on how people communicate with each other. All that you have to do is to pass this booklet on to another person *in this building,* whom you know on a *first-name basis.* Your participation in this project will make a valuable contribution to university research on how we can improve our environment and quality of life. We thank you in advance for your help. Yours sincerely, Stephen Bochner, Ph.D., Director, Social Communications Project. [Each booklet was personally signed by the first author.] PLEASE TURN TO THE NEXT PAGE FOR MORE DETAILS.

Pages 2 and 3 consisted of a center spread, as follows:

WHAT WE WOULD LIKE YOU TO DO. 1) Do you know Mr. G. Duncan, who is a resident in this district? He is married, with two teenage daughters, and works locally as a fork lift driver. Do you know him or his wife on a *first-name* basis? If you do, please give this booklet to Mr. or Mrs. Duncan personally, as soon as convenient. If you do *NOT* know the Duncans on a first-name basis, please see Step 2.

2) Take this booklet to a *resident in your building* whom you know *on a first-name basis*. Ask him or her to take over from you in trying to deliver this booklet to the Duncans. If this person agrees to help, explain that if he does not know the Duncans on a first-name basis, he should pass the booklet to someone else, as you have done. But before the booklet leaves your hands, please follow the instructions in Step 3.

3) Before passing this booklet on to a new person, please detach a postcard from the back of this booklet, fill it in, and drop it in the mailbox. No extra stamps are needed.

4) You may receive this booklet more than once. Or you may get more than one booklet. This does not matter. Just hand it on to somebody who you think may be able to help. But REMEMBER to detach, fill in, and post a card to us everytime you hand the booklet to another person. Remember, also, that you should give the booklet only to someone in this building, whom you know on a first-name basis.

Page 4 contained the following reminder: PLEASE DETACH ONE POSTCARD, FILL IN THE BLANK SPACES, POST THE CARD TO US. Thank you for your help.

As far as could be ascertained, Mr. G. Duncan does not exist. The name was chosen because it is a fairly common one, and yet there is no G. Duncan in the Sydney telephone directory.

Each booklet contained 15 cards, attached to a stub with a perforated edge. The stubs were stapled to the back of the booklet. The front of the card carried the first author's name and address, and each card had affixed to it a stamp of the appropriate denomination. It was felt that the presence of an actual stamp, as distinct from a reply-paid arrangement, would increase the pressure on *S*s to return the cards. The back of the card contained the following open-ended questions: I gave this booklet to . . . who lives in Flat No. . . . I generally see this person at/in . . . My name is . . . and I live in Flat No. . . . Today's date is . . . . Each card in the 15-card booklet was consecutively numbered with an idiosyncratic prefix that clearly identified the chain origin and sequential position of each returned

card. Underneath the last card in the stack, printed on the inside cover of the folder, there appeared the following postscript: "If the supply of post cards has run out, send this booklet to (followed by the name and address of the first author). There is no need to put a stamp on the envelope. Postage will be paid by the University."

3. *The Experimental Setting*

The building is owned by the New South Wales Government Housing Commission, a public housing authority that provides rental accommodation for low income families. The tenants, consequently, are homogeneous with respect to socioeconomic background, being predominantly working class people.

The building consists of two wings, connected by three bridging structures, and each complete level contains 32 apartments. Because the site is uneven, the building varies in height from 10 levels to 7. Two unusual architectural features characterize the building: 1) The lifts stop only on the 1st, 4th, and 7th levels; and 2) The complex is made up of 16 vertical blocks, consisting of pairs of flats on each floor. Each block is served by a common stairwell and entrance. Walkways connect these blocks only on the lift stop floors, so that horizontal movement is restricted to the 1st, 4th, and 7th floors. Therefore, the building can be thought of as consisting of 48 cells, each spanning several levels. Thirty modules contain six flats, 13 contain four flats, three cells have eight flats each, one cell has seven, and there is one five-flat cell.

4. *Procedure*

Nine booklets were started in the East Wing and eight in the West Wing, making a total of 17 chains that were introduced into the building. Each wing was divided into three levels, corresponding to the horizontal divisions between the cells and marked by the lift stops serving each set of floors. For instance, the lift stop on floor 4 also serves floors 5 and 3, with residents walking up or down to reach their respective flats. Thus each wing can be thought of as consisting of three levels, with each level containing eight vertical cells. One flat in each of three cells on each level was randomly selected as a starting location for the chains.

Two interviewers were used, a male and a female, and each was randomly assigned to one wing of the building. Altogether the interviewers knocked on 84 doors. Thirty-eight householders were not at home, 29 refused to participate in the study, and 17 flat dwellers accepted a booklet.

The order in which the starter flats were visited was also prearranged randomly. The interviews were conducted on a Tuesday afternoon from three o'clock onwards. If the occupant of the starter flat was not at home or refused to cooperate, the interviewers followed a prearranged procedure in selecting a substitute flat. They introduced themselves as University staff members, described the purpose of the study as a concern with "how people get to know one another in a big place such as this," and explained that all *S* had to do was to pass a booklet on to someone else in the building. If *S* agreed to participate, the interviewer read through the instructions in the booklet with *S*, emphasizing the University-based nature of the project, the high status of the personnel, the importance of the postcards, the first-name basis of the acquaintance to whom the booklet was to be advanced, and that all personal information (such as names and flat numbers) would remain confidential. After the project had run its course, the first author wrote to each of the participants thanking them for their cooperation.

C. Results and Discussion

Out of the 17 booklets that were distributed, six progressed beyond the starter flat. Four of these booklets travelled a substantial distance through the building, two had a limited passage, and 11 were stillborn. Specifically, the six "live" chains were, respectively, 10, 8, 6, 5, 3, and 2 transactions long.

In view of the relative difficulty and strangeness of the task, and the low socioeconomic and educational status of the residents, the response rate compares favorably with the return usually received from mailed questionnaires, which for a population such as the one used in the present study could be as low as 10% (7). Even in Milgram's studies, where the starters were all volunteers who had responded to an advertisement or a direct mail appeal, between a quarter and third of the chains dropped out at the beginning. Nevertheless, the relatively large drop-out rate does constitute a problem.

The paths that the six "live" chains took through the building were quantified in terms of the size of the steps in the chain. A transaction within a residential cell was given a score of 1. A transaction between cells was given a score reflecting the number of cells separating the two flats, so that the index increased with the distance traversed. There were 13 transactions with a score of 1, eight transactions with a score of 2, six transactions with a score of 3, and one transaction with a score of 5. Thus, there

was a marked positive skew in the distribution in favor of "short" transactions, the modal tendency being for transactions to occur within cells.

If each transmitter had randomly selected the next recipient of the booklet, the probability of a transaction occurring within a cell would be .0172. This value was obtained by dividing the average number of flats per cell, minus one, by the total number of flats in the complex, minus one. The probability of obtaining 13 or more within-cell transactions out of the 28 that occurred is vastly less than .001, using a binomial expansion, leading to the conclusion that such a high frequency of within-cell transactions could not be due to chance.

The data are therefore consistent with the established literature on the effect of propinquity on social interaction, ranging from the study by Festinger, Schachter, and Back (1) of a student apartment complex, to a recent field study of a police training academy that used an unobtrusive index of proximity (6). What distinguishes the present study is that the data do not depend on a sociometric choice, or on a statement of intent by the *S*s. Rather, the data reflect the behavioral act of transmitting an object to another person whom the *S* knows on a first-name basis. In view of the often reported discrepancy between attitudinal statements and action [e.g., reviewed by Wicker (9)], a method that elicits a behavioral index of the phenomenon under scrutiny is of considerable value.

Why did so many of the chains fail to start altogether, or falter early in the sequence and extinguish? The results are consistent with the subjective reports of many observers that buildings, such as the one in question, are not a community, and it is therefore quite likely that the chains failed because a sizable proportion of the residents do not have many first-name acquaintances in the building. However, until the method has received further validation, such a conclusion is unwarranted, since the chains could have failed simply because *S*s were insufficiently motivated to comply with the request to forward the booklets. The question is capable of being addressed empirically; in a building with a known community spirit, we would expect a larger proportion of successful chains, and a weaker propinquity effect, since presumably communication patterns would not be determined so much by proximity, but based on other factors as well.

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DEFENDANT SENTENCES AS A FUNCTION OF ATTRACTIVENESS AND JUSTIFICATION FOR ACTIONS*

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SUMMARY

In a test of the hypotheses that (*a*) defendants who have high external justification for their behavior would be sentenced less severely than defendants with low external justification and (*b*) an attractive defendant with low external justification would be sentenced more severely than an unattractive defendant, 60 American college students were randomly assigned without regard to sex to one of four treatments generated by two types of defendant descriptions (attractive *vs.* unattractive) and by two levels of defendant external justification (high *vs.* low: i.e., unspecified). Results confirmed both the predicted main effect for external justification ($p < .05$) and the defendant characteristics by external justification interaction ($p < .05$). Attractive defendants, therefore, were not inevitably treated more leniently than unattractive defendants.

A. INTRODUCTION

Mitchell and Byrne (8) in a review of recent jury studies using American college students as simulated jurors indicate that three major classes of variables appear to influence the responses of simulated jurors. They are defendant characteristics, juror characteristics, and trial procedures. In addition Vidmar (10), Laughlin and Izzett (7), and Izzett and Leginski (3) have suggested that a methodological variable of the study itself—namely, whether the jurors are permitted to engage in group discussion—will influence the responses of subject jurors.

Attribution theory (2, 5) suggests still another class of variables that may influence the responses of simulated jurors—environmental factors sur-

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rounding the crime. Both Kelley (5) and Heider (2) have indicated that an actor is held less responsible for an action when plausible external causes for that behavior are also present. Thus the first hypothesis of the present study was that a defendant who had a great deal of external justification for his behavior would be judged less severely than a defendant who had little external justification.

Although most studies exploring the variable of defendant characteristics have indicated that attractive defendants are treated more leniently than unattractive defendants (6), Sigall and Ostrove (9) found that defendants who use their attractive qualities to commit a crime successfully (e.g., a swindle) are treated more *severely* than unattractive defendants. These results suggest that jurors are particularly offended when their positive expectations of attractive others are violated: i.e., when they perceive defendants as having used their attractiveness to obtain illicit ends successfully. Jones, Bell, and Aronson (4) have also obtained results suggesting that individuals dislike having their positive expectations of others violated. Jones *et al.* found that *S*s were more negative in their evaluations of an attitudinally similar target than an attitudinally dissimilar target when the target expressed dislike for the *S*. Thus, on the assumption that subject jurors would dislike having their positive expectations of others violated, it was hypothesized that defendant characteristics would interact with the external justification variable. Specifically, it was hypothesized that attractive defendants would be sentenced more *severely* than unattractive defendants when there is little or no external justification for their behavior and more *leniently* when external justification for their behavior is high.

B. Method

1. *Subjects*

Sixty introductory psychology students were randomly assigned to one of four treatment conditions produced by the two types of defendant descriptions—attractive *vs.* unattractive—and by the two levels of external justification—high *vs.* low (or unspecified). There were 15 *S*s in each treatment and all *S*s were run in groups of 7 to 10.

2. *Procedure*

Randomization of *S*s to treatment conditions was obtained by shuffling the experimental booklets representative of the four treatments prior to the *S*s entering the experimental room.

The first page of each booklet contained a set of instructions informing the *S* that (*a*) the study was concerned with the nature of the judicial decision making process; (*b*) the *S* would be asked to read a summary of an actual criminal case; and (*c*) when he finished reading the case he would be asked to give a number of his personal opinions concerning the case.

The second page contained an abstract of a criminal case involving a defendant who had been charged with embezzling funds from his employer. The defendant in the case was described as either (*a*) an attractive individual (e.g. a warm, friendly, and likeable person who was a good and conscientious worker who would go out of his way to help fellow co-workers) or (*b*) an unattractive individual (e.g. a cold and distant person who was antagonistic and aggressive toward fellow co-workers).

In the abstract, it became evident that the defendant had embezzled funds from his employer for the purpose of either (*a*) meeting medical expenses of his wife who had been hospitalized for a long period of time (high external justification) or (*b*) paying off a personal debt (external justification unspecified: i.e., low). In all cases the defendant was said to already have borrowed the maximum amount of money possible from a bank and loan company; however, the sum was said to have been not sufficient to pay off the debt he had incurred.

After reading the abstract, *S*s were asked to sentence the defendant from 1 to 20 years of imprisonment, rate the defendant's justification for committing the crime on a seven-point justification scale ranging from not justified (scored as a 1) to completely justified (scored as a 7), the defendant's attractiveness on a seven-point scale ranging from 1 (unattractive) to 7 (attractive), how guilty they felt the defendant was on a seven-point scale ranging from 1 (definitely not guilty) to 7 (definitely guilty), and the responsibility of the defendant in perpetrating the crime on a seven-point scale ranging from 1 (totally unresponsible) to 7 (totally responsible).

C. Results

Data relevant to the testing of hypotheses are presented in Table 1. An analysis of the attractiveness ratings indicated that the attractive defendant was evaluated as more attractive than the unattractive defendant ($F = 29.92$, $df = 1/56$, $p < .001$) and an analysis of the justification ratings indicated that the defendant's behavior was evaluated as more justified ($F = 15.22$, $df = 1/56$, $p < .001$) when he embezzled funds for the purpose of meeting his wife's medical expenses. Thus, both manipulations were successful. Analyses of the sentences received by the defendants indicated

TABLE 1
MEAN SENTENCES IN YEARS AND RATINGS OF JUSTIFICATION, ATTRACTIVENESS, GUILT, AND RESPONSIBILITY FOR TREATMENT CONDITIONS

Defendant characteristics	Dependent measures	External justification: High	External justification: Low
Attractive	Sentence	1.87	5.47
	Justification	4.80	2.43
	Attractiveness	5.20	5.06
	Guilt	5.47	5.70
	Responsibility	5.80	5.60
Unattractive	Sentence	2.73	3.33
	Justification	4.53	3.40
	Attractiveness	3.00	3.40
	Guilt	4.60	4.70
	Responsibility	5.60	5.60

no main effect for the defendant's attractiveness ($F < 1$); however, in support of the first hypothesis, there was a main effect for justification ($F = 5.36$, $df = 1/56$, $p < .05$) with those defendants having high external justification being treated more leniently. In support of the second hypothesis, the defendant characteristics by justification interaction were significant (F 4.25, $df = 1/56$, $p < .05$) with the attractive defendant being sentenced more *severely* when external justification was low but more *leniently* when external justification was high.

Although the defendant's behavior was evaluated as more justified when he embezzled funds for the purpose of meeting his wife's medical expenses, a 2 × 2 analysis of the S's evaluations of the defendant's responsibility in perpetrating the crime indicated no main effects for justification ($F < 1$), or for defendant characteristics ($F < 1$); nor was the interaction significant ($F < 1$). An analysis of the guilt ratings unexpectedly revealed a main effect for defendant attractiveness ($F = 5.36$, $df = 1/56$, $p < .05$) with the attractive defendants perceived as more guilty. Again, neither the main effect for justification ($F < 1$) nor the interaction ($F < 1$) was significant.

D. DISCUSSION

The results suggest that subject jurors took into account environmental factors that may have contributed to the defendant's behavior when sanctioning him. However, as Block and Geis (1) have pointed out, motive (i.e., defendant's external justification) should have no influence on judgments rendered by jurors.

The results also suggest that the subject jurors made a conceptual

distinction between responsibility and justification for one's behavior. Attribution theory suggests that defendants would be held less responsible and seen as having more justification for their behavior when external environmental pressures are high. However, results indicated that although defendants with high external justification were seen as having more justification for committing the crime, they were perceived as equally responsible in perpetrating the crime and as equally guilty. The interesting point is that although they were seen as equally responsible in perpetrating the crime and as equally guilty, they were sanctioned (sentenced) more leniently.

The significant interaction between the defendant's characteristics and the external justification variable suggests that socially attractive defendants were not always treated more leniently by subject jurors than socially unattractive defendants. In particular, the interaction between the external justification variable and defendant characteristics suggests that we as perceivers may seem to look for excuses for attractive defendants and if we can find one (high external justification) treat them leniently; however, if we are unsuccessful in finding an excuse (low justification) we may become particularly offended and treat them more harshly than we would otherwise.

Finally, a caveat is in order. It should be mentioned that the situation confronting the *S*s in our laboratory situation was quite different from an actual courtroom situation. In particular the *S*s rendered individual judgments without discussing case materials with fellow subject jurors. Also their judgments had no real consequences for the defendant. In light of Izzett and Leginski's (3) conclusion that deliberation may influence juror decisions, one must be cautious in generalizing the results of the present study.

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THE EFFECT OF AN INTERVIEW ON PERCEPTION OF THE INTERVIEWING ORGANIZATION*

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SUMMARY

The interview is considered as a potential impression formation situation for the interviewee, with the organization sponsoring the interview as the object of perception. Several aspects of the individual's prior contact with the organization and some qualitative aspects of the interview were used to try to predict the interviewee's attitude. Results of a survey of 75 incumbent state legislators showed that those who were interviewed relied less heavily upon information from previous contacts when forming impressions of the organization than those not interviewed. The findings suggest that an interview conducted by a single member of an organization allows for a more differentiated set of attributions toward the organization sponsoring the interview, at least for the special social-political context in which the study was conducted.

A. INTRODUCTION

The research reported in this paper was initiated when the authors were invited to train interviewers for a citizens' lobby group (CLG) which was interviewing members of the state legislature and wanted to be sure that their interviewers were competent. Among their concerns were what effect the interviews might have on the legislators' regard for the CLG. "Making a good impression" was not one of their goals, but they did not want to damage their reputation either (8).

In discussing these questions with members of the organization, we realized that very little of the impression formation literature bears directly

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on the question: What are the consequences of an interview on respondent attitudes toward the *organization* conducting the interview? The discussion here is limited to the "information gathering" interviews, such as those conducted by journalists and social scientists. These are not to be confused with "confrontation" or therapeutic interviews, wherein the goal of the encounter is to produce change in the individual interviewed.

The lack of research on this topic is somewhat remarkable. Interviews have played an important role in the social sciences almost since the beginning; yet most discussions of the interview deal with the "how to . . ." questions rather than considering the impact upon the interviewee. The literature that does consider the interviewee discusses rapport and rapport building as an *interviewer* strategy (e.g., 2, 7). Even here the question receives consideration only when there are serious doubts about trust or when the interviewer or journalist must remain in contact with the same source (*cf.* 3). For them, it is clearly important that the interviewees maintain a positive regard for the interviewer and his organization. It should also be realized that the impressions the interviewer leaves behind can affect the ability of other interviewers to work effectively (2, p. 597).

The interviews the CLG conducted provided an opportunity to examine the impact of the information gathering interview on the individual interviewed. This study examined the impact of the interview, previous contacts with the organization, and the qualitative differences in the interview itself on the individual's attitude toward the CLG.

The interviews were conducted during a six-week period. Approximately two thirds of the state legislators were interviewed. Individual interviews lasted anywhere from 1½ to six hours.

B. Methods

All members of the legislature were asked to reply to a questionnaire. Of the 210 legislators, 75 replied. While this may seem to be a small proportion of those solicited, it should be recalled that these questionnaires were distributed during 1972, just as most of the candidates were beginning their election campaigns. The sample obtained seemed representative of the legislature as a whole on age, party affiliation, and seniority. Of these 75, five were not used in the analyses because the individuals responded to so few of the questions.

Letters soliciting the legislators' participation were mailed with the questionnaires in three waves, each two weeks apart. A single mailing would have biased the results in two ways: (*a*) If all the letters were sent too early

in the course of the CLG's interviews, most of the respondents would not have been interviewed; if mailed too late, only those who have refused or avoided the interview would not have been interviewed. (*b*) Even if a single mailing had been timed perfectly with respect to the proportion of the sample interviewed, there would still be biasing from activities, extraneous to the interviews, in which the CLG was involved at the particular time. By spreading the administration of these questionnaires over a four week period and accepting replies over a 2½ month period, the impact of coincident events was reduced.

The two-page questionnaire asked the respondents to rate the CLG on a set of adjective pairs for three different questions: (*a*) the legislator's attitude toward the CLG, (*b*) a description of the legislator's previous contact with the CLG, and (*c*) if interviewed, a description of the interview. The specific items were weak-strong, good-bad, and inflexible-flexible for the attitude question. For previous contact respondents were asked to make their ratings on bad-good and warm-cold; and the ratings of the interview were pleasurable-annoying and long-short.[2] In addition, the respondents were asked to rate the frequency of their previous contacts with the CLG.

The sample was divided into those who had been interviewed and those who had not. As the extent of previous contact might have a serious impact on attitude, this was partialled out in all analyses in which it was not the variable of primary interest.

The large difference in the number of people who have been interviewed as opposed to those who had not been (49 of the respondents had been interviewed, 21 had not) is explained by the fact that the CLG did interview a large portion of the state's legislators (about two thirds).

C. Results

1. *Effects of the Interview*

The simple occurrence or nonoccurrence of an interview did not have an effect upon attitudes; *F* ratios were less than one for differences between

[2] The specific adjective pairs were selected from among a number that were presented in the questionnaire. The total list of adjective pairs was factor analyzed by a principal components analysis with varimax rotation; the lists for each of the three questions were analyzed separately. The pairs used in this paper were selected from each of the independent factors, and they were used in preference to aggregated factor scores for two reasons. First, the meaning of the individual items is less ambiguous than that of the aggregated scores. Second, they have played a long and important role in the social perception literature (e.g., 1, 6, 9, 10) and thereby permit comparison with previous research. When analyses were run with the aggregated factor scores, the results were essentially the same as those reported here, leading to the same conclusions.

TABLE 1
PARTIAL CORRELATIONS OF PRIOR EXPERIENCE AND DESCRIPTION OF THE INTERVIEW WITH ATTITUDE TOWARD THE CITIZENS' LOBBY GROUP (CLG)

Description of	Attitude toward the CLG: Weak	Good	Inflexible	*n*
Interview[a]				
Pleasurable	−.27	.45***	−.01	49
Long	−.09	.36**	.08	49
Previous contact[b]				
Warm				
Not interviewed	−.58**	.80***	−.73***	21
Interviewed	.00	.21	−.04	49
Total sample	−.20	.43***	−.32***	70
Bad				
Not interviewed	.45*	−.73***	.72***	21
Interviewed	.10	−.56***	.47***	49
Total sample	.21	−.56***	.54***	70

* $p < .05$.
** $p < .01$.
*** $p < .001$.
[a] Correlations with description of the interview partial out of the effects of frequency, warmth, and badness of prior contact.
[b] Correlations with description of prior contact partial out the effects of frequency of prior contact.

those interviewed and those not interviewed for all three attitude measures. The qualitative aspects of the interview (the degree to which it was rated as long or pleasurable) played an important role. This is indicated by the correlations between the two measures of interview quality and the three indicies of attitude. Even after the effects of previous experience are partialled out, several of these relationships remain strong (see Table 1). Increased pleasure and length of interview are both associated with increases in positive evaluation. Thus, while an interview did not assure a more positive attitude toward the organization sponsoring the interview, a pleasant experience in that interview was associated with more positive feelings toward the organization.

2. *Effects of Previous Experience*

As with the interview, the effect of frequency of prior contact was small, having no significant correlations with the perceived strength or flexibility of the organization. There was a correlation between frequency and how "good" the organization was seen to be; respondents with more frequent prior contact viewed the group as being better ($r(69) = .38$, $p < .01$).

Again, the qualitative differences seem more important. The degree to

which previous encounters were "bad" was significantly related to each of the attitude measures, even after overall frequency of previous contact was accounted for. Warmth had an opposite, though slightly weaker effect. This suggests that the respondents utilized their experience in prior interaction with members of the organization when formulating their attitudes toward the organization.

3. *Differences in Use of Information Between Those Interviewed and Those not Interviewed*

The results up to this point suggest that previous experience was the best indicator of attitude toward the organization. By contrast, the interview had relatively little impact. But, if prior experience was the main source of attitude toward the organization, how did the interview affect the *relationship* of experience to attitudes?

As indicated by the differences in correlation between those who were interviewed and those who were not, there was a rather dramatic effect. Consistently, those who were interviewed relied less heavily upon previous experience. This held true even when the frequency of prior contact was held constant. The negative relationship between previously experienced warmth and one's perception of the organization's strength was reduced to zero ($z = 2.29$, $p < .05$); similarly the negative relationship of warmth to inflexibility was reduced to a negligible level ($z = 3.09$, $p < .01$). This may be seen as an increase in differentiation. Warmth is a positive attribute, while weakness and inflexibility are generally negative. Similarly, the decline in correlation between warmth and good ($z = 3.06$, $p < .01$ shows the interviewed respondents better able to meld positive and negative information.

One finds a similar effect in the relationship of bad prior experiences to attitude. Once again the magnitude of the relationships was less for the interviewed group. The direction of this reduction was away from generalized affect. The relationship of bad to both weakness and inflexibility were reduced, although not significantly ($z = 1.35$ in both instances). Even in the relatively redundant case of bad to good, there was a reduction of more than 20% in the estimate of the variance explained ($z = 1.03$).

These differences in correlation cannot be dismissed as merely differences in prior experience. Those who were interviewed showed no significant differences in their frequency of prior contact [F (1/66) = 1.12] nor in their ratings of the warmth or badness of these encounters [F (1/66) = .01 and F (1/66) = 2.41]. Nor can one claim that the duration or quality of the

interview played a major role in these differences; partialling out the effects of these variables only serves to sharpen the differences in the correlations.

4. *Other Differences Between the Groups*

Comparisons have been made between those interviewed and those not interviewed throughout this paper. But it must be remembered that participants were not randomly assigned to these two conditions. Therefore, it is important to ascertain whether members of the two groups differed on any other known dimension.

As was reported earlier, the two groups did not differ significantly in their attitudes toward the CLG nor their ratings of previous encounters with the group. The two groups were not differentiated on their ratings of their own liberality [t (65) = .57]. They also failed to differ significantly on their self-ratings of support for three controversial bills facing the legislature: a land conservation bill [t (68) = .22], a "law and order" bill opposed by civil libertarians [t (64) = .38], and a progressive tax reform bill [t (68) = .61].

The ratio of those not interviewed to those interviewed was approximately 1:2; this ratio obtained for each of the three mailings [$\chi^2(2) = .01$]. There were comparable proportions of members from each of the two houses in the state legislature in each of the groups [$\chi^2(1) = 1.03$]. Indeed the two groups differed on only one measure; those respondents not interviewed tended to have held office somewhat longer [t (66) = 2.13, $p < .05$].

It seems that the two groups were comparable on most dimensions. Still there was self-selection; three of the 21 respondents not interviewed admitted having refused to be interviewed. Those interviewed tended to have been in office for a shorter time. And there may have been still other differences between these groups which were not exposed. Under any circumstances nonrandom assignment must limit one's confidence in the findings; however, the fact that the groups used in the present study did not show significant differences in many potentially confounding areas (liberality, previous experience, etc.) suggests that comparisons between those interviewed and those not interviewed can be considered meaningful.

D. Discussion

The central finding was that the *S*s relied less heavily upon information from previous experiences following an interview. While the quality of the experience in the interview did influence attitudes, this alone did *not* explain these radical differences in correlations between the two groups.

The interview allowed the individual the opportunity both to observe and "test" the interviewer; this permitted confirmation, modification, or disconfirmation of the interviewee's beliefs.

The results suggest that interpersonal interaction may have provided more than simply an increase in the information or the number of "cues" available for forming an impression. There was something in the interactive process that contributed to the increased complexity of information utilization. For example, we know that recency-primacy can have an effect upon the way a particular piece of information is used (4, 5) and that this effect is more pronounced in some environments than in others. The interview is a situation in which the individual has some control over both the types of information to which he chooses to attend and the sequence in which that information is made available. This control over the sequencing of information may have contributed to the independence of attitude for those who were interviewed.

The interviews in addition may have had their potent impact upon the relationship of previous experience to attitudes because the interview was one of the most extended exposures the individual had to the organization sponsoring the interview. This was probably the case for many respondents in the present study. If the interview provided a considerably longer exposure than the total of one's previous experiences, comparing those who were interviewed to those who were not may be something like comparing those with some information to those with virtually none. In some ways this may capture part of the situation, but if it does we should be mindful of some of the implications for traditional social and person perception research and wary of the conclusions based upon it. If legislator's contact with the CLG was limited, so much so that an hour or two of conversation could reduce the effect of that contact to virtually nothing, then how much more limited is the impact of the cues presented in studies of social perception? The legislators certainly had more exposure to the CLG than a one-page scenario or a list of trait words.

It should also be recognized that the CLG's interviewers came to their encounters with the legislators in a particular role: information-gathering interviewers. Whether a psychiatric, employment, or appraisal interview would result in similar effects is unknown.

The findings raise questions for large organizations, such as government agencies and private bureaucracies, which have *multiple* contacts with individuals. How do people integrate the information from these different interactions? To what degree do they differentiate the individual from the

organization? The results from the present study would suggest that individuals are not always differentiated from the organization. How are cognitively inconsistent behaviors by *different* members of the same group or organization integrated by nonmembers? The findings presented here suggest that interpersonal encounters with members of an organization may substantially affect the way in which it will be viewed, and these encounters may alter the impact of other information.

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PERSUASIBILITY AND PERSUASIVENESS AS A FUNCTION OF SEX*[1]

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SUMMARY

This study attempted to measure the effect of small group discussion with sex membership controlled. It was predicted that an individual female would maintain her original position as strongly as an individual male, and would be more effective in persuading three male discussants. A test of social attitudes was administered to select 128 undergraduate students enrolled at The Cleveland State University and Loyola College who held opposing views. Sixteen groups were then formed wherein one female discussed a controversial topic with three males who held the opposing opinion, and a single male was grouped with three opposing females. Sixteen control groups were composed of same-sex discussants with opposing viewpoints. Data were analyzed in terms of effect upon the individual and effect of the individual. There was no sex difference in amount of change manifested by the "isolated" individuals ($F < 1, p > .05$), but females were more effective in changing opinions of their discussion partners ($F = 5.81$, $p < .05$).

A. INTRODUCTION

Studies of attitude change have thoroughly investigated attributes of individuals being influenced and characteristics of the source of the influence. However, in spite of a warning by Janis and Field in 1958 (7) that sex differences in persuasibility necessitate separate consideration of male and female subsamples, this factor tends to have been overlooked in recent investigations. Carlson and Carlson reported in 1960 (3) results of a survey of articles published in *The Journal of Abnormal and Social Psychology* showing an overwhelming use of male as compared to female *S*s. A

* Received in the Editorial Office, Provincetown, Massachusetts, on June 9, 1975. Copyright, 1976, by The Journal Press.

[1] The authors would like to thank Edward Kobrinski for his valuable help in collecting the data.

decade later Carlson (2) found some improvement in the situation, but still found males and females represented in approximately a 2 to 1 ratio. Moreover, she reported one-fifth of the articles in 1968 volumes of *The Journal of Personality* and *The Journal of Personality and Social Psychology* failed to indicate proportion of males and females in the sample or to indicate whether sex varied at all. Prescott and Foster (9) have documented the tendency of researchers to use a single sex (usually males) for studies reported in the 1970 and 1971 issues of *The Journal of Personality and Social Psychology,* while generalizing results to both sexes.

In those few instances where sex has been systematically related to attitude change, there seem to be indications that females are more persuasible than males. However, Janis and Field (7) and King (8) used high school *S*s in their studies leading to this conclusion. Whittaker and Meade (11) used two different samples of college *S*s in addition to high school groups and found no significant differences at the college level, although they confirmed the earlier results when using 14-year-old *S*s. Hjelle and Clouser (6) also found no significant sex differences in persuasibility when using *S*s of college age. Each of these studies used some form of written communication as their technique of persuasion.

In view of this minimal evidence it seems necessary to expand the method of persuasion utilized in attitude change studies that control for the sex factor. Risky shift studies have consistently used group discussion, and this technique seems to be appropriate to utilize as a vehicle of persuasion in less complex attitude change studies.

Although the previous studies with college age *S*s [Whittaker and Mead (11), Hjelle and Clouser (6)] showed no sex difference in persuasibility, one wonders if the recent emphasis on "the liberation" of women might tend to encourage females to be less susceptible to male influence and more forceful in attempting to bring males around to their point of view.

The present study attempted, therefore, to measure the effect of small group discussion with sex membership controlled. It examined an interaction process wherein a single member of one sex discussed a controversial topic with three members of the opposite sex holding an opposing point of view. Control groups consisted of same-sex members discussing a controversial topic. It was predicted that individual females would maintain their original position as strongly as individual males, and would be *more* effective in persuading the three males to alter their original attitude than would the individual males in persuading the three females in their groups.

B. Method

1. *Subjects*

*S*s were 128 undergraduate students enrolled in introductory psychology courses at The Cleveland State University and Loyola College. They were selected for the sample on the basis of sex and pretested social attitudes. Sixty-four *S*s formed mixed-sex discussion groups and 64 *S*s were in same-sex groups.

2. *Procedure*

The authors administered a test of social attitudes to 375 undergraduate students. The instrument consisted of 15 items, such as "Automobiles should be banned from urban areas because their pollution is a serious health hazard" and "Newsmen have an obligation to reveal their sources of information to grand juries when requested to do so." *S*s were merely told by the instructor that she wanted to take a general survey of the social attitudes of the class. *S*s expressed degree of agreement or disagreement with each item by means of a five-point Likert-type scale ranging from strongly agree to strongly disagree. The 128 *S*s participating in the actual experiment were then selected according to sex and extreme attitudes (strongly agree, strongly disagree) toward specific social issues. Only those items which discriminated accordingly were utilized in the experiment. These were as follows: "Many problems facing Blacks today are caused by Blacks themselves"; "Newsmen have an obligation to reveal their sources of information to grand juries when requested to do so"; "Priests and ministers have no right to engage in political activity"; and "Every family in the United States is not entitled to a guaranteed annual income."

3. *Experimental Treatment*

Eight weeks after the initial test of social attitudes was administered the actual experiment was undertaken. The purpose of the time delay was to insure a maximum amount of discontinuity between the two events. The original 375 students were told that they were going to study group processes experimentally during the regular class periods. All actually did participate so that the 64 experimental and 64 control *S*s were unaware that they were part of a special group consisting of eight groups with three females and one male with polarized attitudes: i.e., three females (majority) who rated a particular item on the pretest "strongly agree" or "strongly

disagree" and a single male (isolated) who rated a particular item at the other extreme, and eight groups with three males (majority) and one female (isolated) with opposite attitudes toward the same items. The 64 control *S*s formed 16 similar groups with the difference being that in this instance both isolated and majority members were of the same sex (eight female and eight male groups). The remaining students were randomly assigned to groups of four, each group discussing one of the above topics.

Prior to the experiment, group raters were trained in the use of Bales' Interaction Process Analysis (1), which was utilized as a measure of group interaction. Sixteen male and 16 female raters were randomly assigned to observe unobtrusively the 16 mixed-sex and 16 same-sex groups. This procedure was utilized to determine whether there was a basic difference between males and females in their interaction techniques. Of particular interest was the type of social-emotional reaction being manifested. Hence, responses in the top three categories of Bales' scale (positive reactions) and those in the bottom three categories (negative reactions) were those under observation.

Each group of four *S*s discussed a designated item from the pretest for 45 minutes. At the end of the session the raters administered the posttest.

One week after the discussion the authors administered Rotter's (10) I-E Scale to the 16 male and 16 female isolated individuals in the 32 groups. This was done to insure that any resulting differences could be attributed to sex, and not solely to I-E differences, as much previous research [Crowne and Liverant (4), Davis and Phares (5), Hjelle and Clouser (6)] has demonstrated a strong relationship between external locus of control and susceptibility to attitude change.

C. Results

Absolute difference scores based on pre- and posttests were compared for the isolated males and females by means of a factorial analysis. Factors utilized were sex of isolated and sex of majority discussants (same or different from isolated). Neither the main effect nor the interactions were significant, indicating that the null hypothesis predicting no difference between male and female isolated members was confirmed ($F < 1$, $p > .05$). It made no difference whether the majority members (who held opposing attitudes) were of the same sex or of the opposite sex.

A factorial analysis was then performed with the use of mean difference scores of the majority discussants as the dependent variable. Again the factors utilized were sex of isolated and sex of majority members (same or

opposite). In this analysis it became obvious that sex of the isolated member was critical ($F = 5.81$, $p < .05$) in determining majority change, and there was a significant interaction between the two factors ($F = 6.68$, $p < .05$).

It is obvious in Table 1 that the female isolated members were more

TABLE 1
MEAN DIFFERENCE SCORES AND STANDARD DEVIATIONS IN SAME AND OPPOSITE SEX MAJORITIES

Group	*M*	*SD*
Males		
With same sex isolated	.788	.39
With opposite sex isolated	1.828	1.352
Females		
With same sex isolated	.746	.864
With opposite sex isolated	.621	.788

effective than males in persuading their discussion partners to change their opinions. In addition, this influence was demonstrated to be significantly greater when their discussion partners were male than when they were female. This interaction is graphed in Figure 1.

In an attempt to account for this demonstration of significant female persuasiveness, especially when discussing with males, a social interaction measure was derived from Bales' Interaction Process Analysis scale. This measure was a ratio of positive input to total positive and negative input for isolated males as opposed to isolated females. A Mann-Whitney *U* revealed a significant difference ($U = 1.0$, $p < .05$) with females having the larger positive ratio.

Examination of the I-E scale results for these same *S*s showed no significant differences between isolated females and isolated males. ($U = 28$, $p < .36$).

D. DISCUSSION

In line with the research hypotheses and contrary to the popular stereotype depicting females as passive and very susceptible to influence, the present study notes a changing conception of the female role. It replicated Whittaker and Mead (11) and Hjelle and Clouser (6) in finding no difference as a function of sex in susceptibility to attitude change when a single individual is under study. Contrary to previous studies, however, the present study allowed for independent examination of individual change

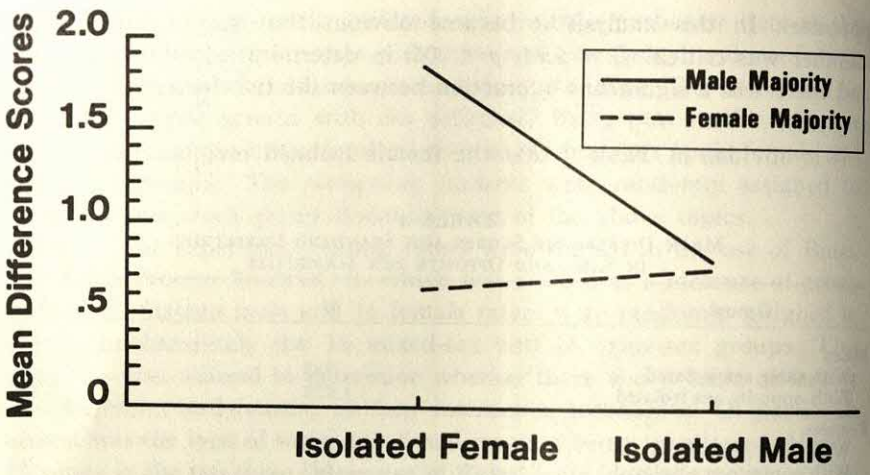

FIGURE 1
MEAN DIFFERENCE SCORES FOR MAJORITY DISCUSSANTS

and influence upon others. Whereas isolated males and females responded similarly in degree of change manifested, their influence upon the three majority members was quite different. While isolated males tended to adhere to their original opinion, they were markedly unsuccessful in persuading either their male or female discussion partners to accept their arguments. When females were isolated, on the other hand, they did not move from their original position but successfully influenced majority opinion.

Several possible confounding elements could have been operating in this experimental design (physical attractiveness, intelligence, leadership ability, etc.), but it was impossible to control for all of these variables. The fact that no attempt was made to reach consensus in the groups and that the second statement of attitude was made privately would tend to offset the effect of these extraneous factors. One variable that was considered critical and could be measured adequately was the type of interaction demonstrated during the group discussion. Observers recorded manifestations of positive and/or negative emotionality by the isolated individuals. Isolated females had a significantly higher ratio of positive responses than did isolated males. It seemed as though the females conveyed an accepting, understanding attitude toward opposing opinions and thereby established rapport, thus laying the groundwork for presentation of their own ideas.

However, while apparently compromising, they did not forsake their original attitudes. Males, on the other hand, seemed to maintain steadfastly their point of view and were unwilling to concur with any statements of the opposition. They, therefore, did not establish a common ground and tended to make all discussion partners defensive and unyielding.

These results, while discomfirming one stereotype of a passive submissive female, tend to confirm another wherein the female is viewed as conniving and manipulative. While these adjectives connote an intentional attempt to deceive, there is no evidence of this in the data. What seemed to emerge was rather a situation in which an isolated female engaged in a spontaneous, warm discussion in which controversial opinions were openly voiced, discussed, and evaluated. The male majority members in a group regressed toward the mean, while the isolated female maintained her original extreme opinion. When males were isolated, no real discussion was initiated. All members tended to push their original opinions with little opportunity for understanding the opposing view. This was possibly due to the isolated male's view of his role *vis à vis* the opposing majority. He could not acquiesce or give ground lest he lose face. Hence neither compromise nor influence was possible.

An unexpected outcome of the present study was the isolated female's greater success in persuading males than females when the vehicle of change utilized was that of group discussion. Whether this finding can be attributed to the alleged inability of women to accept other women as leaders (change agents) or whether it is due to factors in male-female group interaction should be further investigated.

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CROSS-CULTURAL NOTES

Under this heading appear summaries of studies which, in 500 words or less, provide comparable data from two or more societies through the use of a standard measuring instrument; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, **100**, 307-308.

COINS AND COUNTRIES: THE VALUE-SIZE HYPOTHESIS*

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The value-size hypothesis states, in part, that there is a "tendency for sought-after perceptual objects to become more vivid."[1] It has been assumed that poor children have greater subjective need than rich children, and the poor would express their need by perceiving coins as larger than would the wealthy. Although questions of interpretation have arisen (e.g., whether the distortion of coin size is due to imaginal rather than perceptual factors), most research has yielded positive findings.[2] On the institutional level, it can be assumed that persons in poor countries have greater subjective need than persons in wealthy countries, and that a country's coinage allows institutional expression of the level of need. It was predicted that poor countries are more likely to circulate relatively large coins, and wealthy countries are more likely to circulate relatively small coins.

The sample (N = 84) included all countries with 1970 gross national product per capita listings for which complete coin data were available.[3]

* Received in the Editorial Office, Provincetown, Massachusetts, on July 28, 1975. Copyright, 1976, by The Journal Press.

[1] Bruner, J. S., & Goodman, C. C. Value and need as organizing factors in perception. *J. Abn. & Soc. Psychol.*, 1947, **42**, 33-44.

[2] See Munroe, R. L., Munroe, R. H., & Daniels, R. E. Effect of status and values on estimation of coin size in two East African societies. *J. Soc. Psychol.*, 1969, **77**, 25-34.

[3] Estimates of gross national product for noncommunist countries. (Reports Control #137), Statistics and Reports Division, Program and Policy Coordination, Agency for International Development, 1962-1970. Krause, C. L., & Mishler, C. Standard Catalog of World Coins. Iola, Wis.: Krause Publications, 1972.

The GNP per capita estimates (in U.S. dollars—range = $65 to $4756, mean = $959) have some limitations in comparability, but were used as the most readily available index of wealth.

Coin-size data were derived from measurement of actual-size photographs of all current coins under the first (or major) unit (e.g., dollar) for each country. The number of coins per country ranged from 1 to 10. Diameter was measured to the nearest .5 mm, with irregularly shaped coins measured from farthest edge points, ignoring center holes. The two measures used were (*a*) diameter of coin of least value (range = 13.0 to 26.0 mm, mean = 17.5 mm); and (*b*) mean diameter of all coins under first currency unit (range = 17.5 to 27.1 mm, mean = 20.9 mm).

In accordance with prediction, the size of coins circulated by a country was negatively related to its wealth: for GNP per capita by mean size of all coins minted for a country, the rank-order correlation (Spearman's *rho*) was $-.19$ ($p < .05$); for GNP per capita by size of least-value coin, the rank-order correlation was $-.25$ ($p < .025$). The findings are based on GNP data taken from a single time period (1970), and coin-size data taken from a range of years. To circumvent this problem, the hypothesis was retested on a sample of 13 countries (abstracted from the larger sample) which created new coin sets between 1962 and 1969. The mean annual GNP's for each country during this time period were used. Although the size of least-value coin was no longer related to wealth (*rho* = $-.19$, n.s.), the mean size of all coins continued to be significantly correlated with GNP per capita (*rho* = $-.53$, $p < .025$). The findings lend mild support to the value-size hypothesis, and they indicate the potential usefulness of viewing institutional-level data from a psychological perspective.[4]

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[4] Harrington, C., & Whiting, J. W. M. Socialization process and personality. In F. L. K. Hsu (Ed.), *Psychological Anthropology* (new ed.). Cambridge, Mass.: Schenkman, 1972. Pp. 469-507.

REPLICATIONS AND REFINEMENTS

Under this heading appear summaries of studies which, in 500 words or less, provide useful data substantiating, not substantiating, or refining what we think we know; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, **100**, 309-310.

THE EFFECTS OF SALIENCE OF CONSEQUENCES ON ATTITUDES TOWARDS WOMEN'S LIBERATION*

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To test the notion that reminding people of their Women's Liberation stereotypes would affect their attitudes toward sex role questions, questionnaires were given to 97 urban college students. Salience of the *S*s' stereotypes about Women's Liberation was manipulated by placement of a "liberation page" consisting of a checklist of positive and negative adjectives indicating impressions of a "Women's Liberation advocate" and two 11-point graphic scales for rating the necessity and importance of a "Women's Liberation movement." This "liberation page" either *preceded* or *followed* a series of questions on sex roles (i.e., mother *vs.* father responsibility for childrearing and housework; relative importance of job, career, and parenthood; sex preference in hiring; male *vs.* female reliability on the job). A filler page of questions on pollution was added to mask the purpose of the study. The two orders of questions then, were (*a*) liberation page, sex role items, pollution, and (*b*) pollution, sex roles, liberation page. In addition, the female *E* manipulated salience by wearing either "liberated" or "conventional" dress. With sex of *S*s included, the study was $2 \times 2 \times 2$ factorial design.

No effect was found of the dress manipulation or of the questionnaire manipulation on the responses to the sex role items. However, an unexpected and interesting finding did emerge in that placement of the libera-

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tion page affected the responses to the *liberation* questions: net number of positive adjectives checked on the adjective checklist (regarded as a degree of positiveness advocate rating scale). Separate 2 × 2 × 2 ANOVAs (Sex of Subject × Dress Salience × Question Order) of the resulting advocate scale and the necessity and importance scales yielded comparable results[1]: responses to the three scales were most positive when answered *before* rather than after the sex role questions; and on all three scales, before *vs.* after placement had no significant effect on the responses of the female *S*s; however, males who responded to the liberation page *after* the sex role items were significantly less favorable than males who responded before.[2]

It seems likely that the sex role questions made salient the possible negative consequences (for males) of a liberation movement (e.g., housework, job competition, etc.). Thus, when the males responded to the liberation questions first, they tended to be as favorable as the females. However, when the males responded to the liberation questions *after* seeing the sex role items, they became significantly less favorable toward the advocate and toward the necessity and importance of Women's Liberation. This finding is in line with that of Rothbart,[3] who showed that degree of favorable support for a social reform decreased as physical distance between the *S* and the locus of the reform decreased.

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[1] Unweighted means ANOVAs of each of the scales yielded main effects of Question Order [Advocate $F = 7.752$, Necessity $F = 13.884$, Importance $F(1/89) = 9.903$, $p < .01$] and Sex of Subject × Question Order interactions [Advocate $F = 3.996$, Necessity $F = 4.584$, Importance $F(1/89) = 4.507$, $p < .05$].

[2] In each interaction, the mean of the males-after cell was significantly lower than the means of the other three cells, $p < .05$, by Newman-Keuls test.

[3] Rothbart, M. Perceiving social injustice. *J. Appl. Soc. Psychol.*, 1973, 3, 291-302.

The Journal of Social Psychology, 1976, **100**, 311-312.

COOPERATION *VERSUS* COMPETITION IN GROUP CONCEPT ATTAINMENT UNDER CONDITIONS OF INFORMATION EXCHANGE*[1]

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CONNIE SCHICK AND RICHARD P. MCGLYNN

A series of studies with college students as *S*s found that cooperative formats for interaction resulted in better concept attainment performance than competitive formats. The most recent study compared the performance of cooperative pairs allowed discussion, cooperative pairs not allowed discussion, and two competitive individuals. The discussing cooperative pairs outperformed those in other conditions, with no differences between nondiscussing cooperative pairs and competing individuals on any measure.[2] The results suggested that competition itself may not be inhibiting.

The present study was designed to study cooperation *versus* competition under conditions where all *S*s, rather than only cooperating *S*s, would have an opportunity for discussion. This was accomplished by using pairs of dyads where discussion was permitted within each dyad but not between the two dyads which were either cooperating or competing with each other. Additionally, in one condition each pair was assured of its freedom to discuss without being overheard, while in another condition, the dyads were able to overhear each other. This requirement was made to seem reasonable by emphasizing the *E*'s interest in problem solving in various group situations. It was hypothesized that if competition itself has an inhibiting effect, both overhearing and nonoverhearing competitive groups would perform more poorly than cooperative groups. Additionally, if reluctance to discuss information or strategies is a debilitating effect of competition, the competitive group in the overhear condition should perform more poorly than the other groups. Nine four-person groups were randomly assigned to each of the four experimental conditions, and each group solved

* Received in the Editorial Office, Provincetown, Massachusetts, on July 3, 1975. Copyright, 1976, by The Journal Press.

[1] This research was funded by the Graduate School, Texas Tech University. The authors thank Nancy Dennis for her assistance.

[2] McGlynn, R. P., & Schick, C. Dyadic concept attainment as a function of interaction format, memory requirements, and sex. *J. Educ. Psychol.*, 1973, **65**, 335-340.

four successive concept problems. The procedure and instructions were similar to previous studies in this series except for recent modifications.[3] All *S*s were female college students.

A 2 × 2 × 4 analysis of variance with repeated measure on the last factor (problems) revealed no significant differences due to the experimental treatments for measures of strategy, efficiency, or overall performance ($F < 1$ in all cases). All measures, however, showed significant ($p < .01$) improvement on successive problems in all conditions, a finding consistently obtained in previous studies for discussing cooperative pairs but not for nondiscussing cooperative or competitive pairs. This latter finding suggested that all groups in the present study were performing at a level previously attained only by discussing cooperative pairs, and a comparison between the mean scores obtained in this study and the equivalent means for discussing cooperative pairs in previous studies provided further support for this notion. While it is not feasible to draw firm conclusions from support of the null hypothesis, the results suggest that discussion may be more instrumental in influencing the problem solving behavior of American college students than cooperation-competition.

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[3] McGlynn, R. P., & Schick, C. Reduced information feedback on a selection concept learning task. *Behav. Res. Meth. Inst.*, 1973, **5**, 355-356.

The Journal of Social Psychology, 1976, **100**, 313-314.

EYE CONTACT, TOPIC INTIMACY, AND EQUILIBRIUM THEORY*

University of South Dakota

DAVID R. ANDERSON

Exline, Gray, and Schuette[1] reported that *S*s who discussed a neutral topic with a constantly gazing interviewer returned the interviewer's gaze significantly more than those *S*s who discussed a more intimate, personal topic. Argyle and Dean[2] cited this result as supportive of their affiliative conflict theory (equilibrium theory), which states that interactants in a social encounter attempt to maintain an "equilibrium level" of intimacy through compensatory variations of their affiliative behaviors. However, since the concept of equilibrium implies the occurrence of compensatory changes *within* individuals, the present study attempted to replicate the findings of Exline, Gray, and Schuette with the use of topic intimacy as a within-subjects factor. An attempt also was made to refine their procedure by using dyads of "real people" as the units of measurement, rather than having one member of each pair (a confederate) gazing constantly. It was felt that this refinement would create a more natural interpersonal situation, as well as justify the use of the term "eye contact" to label the dependent measure.

Thirty-six same-sex dyads, varying in sex and reported "willingness to disclose" (low, medium, and high), participated in the experimental procedure. Each dyad discussed three topics previously rated to be of low, medium, and high intimacy. Each topic was discussed for two minutes, one minute by each dyad member. Order of topic presentation was counterbalanced so that all six possible orders were represented once in each cell of the design.

A 2 × 3 × 3 analysis of variance (Sex × Willingness to Disclose × Topic Intimacy, repeated measures on the last factor) did not reveal a significant main effect for topic intimacy ($F = 2.47$, $df = 2/60$, $.05 < p < .10$).

* Received in the Editorial Office, Provincetown, Massachusetts, on July 16, 1975.
Copyright, 1976, by The Journal Press.

[1] Exline, R., Gray, D., & Schuette, D. Visual behavior in a dyad as affected by interview content and sex of respondent. *J. Personal. & Soc. Psychol.*, 1965, **1**, 201-209.

[2] Argyle, M., & Dean, J. Eye-contact, distance, and affiliation. *Sociometry*, 1965, **28**, 289-304.

However, the nonsignificant trend suggested a *curvilinear* relationship between eye contact and topic intimacy, eye contact increasing in level from the low to the medium intimacy topic ($p < .06$) and decreasing in level from the medium to the high intimacy topic ($p < .06$). This trend is not supportive of equilibrium theory, which would predict an approximately linear decrease in eye contact as topic intimacy increased. Neither of the other main effects, nor any of the interactions, was significant.

Although a recent review of literature[3] suggested general support for equilibrium theory, a majority of the reviewed studies varied interpersonal distance as the independent variable or measured it as the dependent variable, whereas Argyle and Dean proposed the theory to encompass the entire range of affiliative behaviors. The present failure to replicate the results of Exline, Gray, and Schuette suggests the need for further experimentation and diversification of the range of variables examined before a statement of general support of equilibrium theory is justified.

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[3] Patterson, M. L. Compensation in nonverbal immediacy behaviors: A review. *Sociometry*, 1973, **36**, 237-252.

The Journal of Social Psychology, 1976, **100**, 315-316.

EFFECTS OF VICTIM INJURY, VICTIM COMPETENCE, AND DEFENDANT OPPORTUNISM ON THE DECISIONS OF SIMULATED JURORS*

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MYRON BOOR

A recent study[1] found that severity of juridic judgment by simulated jurors (college students) was not increased when sympathy was elicited for the victim by highlighting the opportunistic advantage that had been taken of his frailties. The present study investigated another popular assumption, that severity of juridic judgment would be increased if sympathy were elicited for the victim by emphasizing the degree of his injury.

Case accounts of a crime, adapted from Sigall and Ostrove,[2] described how a 23-year-old male defendant induced a 72-year-old man to invest $500.00 in a nonexistent corporation.[3] These 450-word accounts described the victim either as a wealthy retired business executive (Wealthy Victim) or as a retired factory worker on social security (Poor Victim). By the procedure described in an earlier study[1] the defendant in half of the accounts in each condition was portrayed as having taken opportunistic advantage of the victim's intellectual impairment (Incompetent Victim), and the other accounts made no comment regarding the victim's intellectual functioning (Competent Victim). Since prior research[1,2] found juridic judgment to be unaffected by sex of defendant and sex of *S*, those effects were not investigated.

Each of the four case accounts was evaluated individually by 18 male and 18 female introductory psychology students (total $N = 144$). *S*s "sentenced" the defendant to a number of years of imprisonment by circling a number from 1 to 15, and then made several ratings on nine-point bipolar scales presented on a separate page.

*S*s viewed the financial loss as more serious for the poor victim

* Received in the Editorial Office, Provincetown, Massachusetts, on July 28, 1975.
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[1] Boor, M. Effects of victim competence and defendant opportunism on the decisions of simulated jurors. *J. Soc. Psychol.*, 1975, **96**, 301-302.

[2] Sigall, H., & Ostrove, N. Beautiful but dangerous: Effects of offender attractiveness and nature of the crime on juridic judgment. *J. Personal. & Soc. Psychol.*, 1975, **31**, 410-414.

[3] These materials are available from the author at the address shown at the end of this article.

($F = 83.47$, $df = 1/140$, $p < .001$) and viewed the competent victim as more capable ($F = 8.88$, $p < .005$); thus these manipulations appeared successful. A significant interaction ($F = 3.93$, $p < .05$) indicated that the wealthy-competent victim was viewed as more capable than the other three victims. No other effects on those ratings were significant ($Fs < 3.27$, $ps > .05$).

*S*s were more sympathetic with the poor victim ($F = 6.56$, $p < .025$) but not, as in the earlier study,[1] with the incompetent victim ($F < 1.00$), and *S*s did not feel that more unfair advantage had been taken of those victims ($Fs < 1.18$, $ps > .20$). The emphasis in this study on the victim's financial status thus appears to have eliminated the differences on those ratings between the competent and incompetent victims noted in the earlier study.[1] *S*s did not assign greater sentences in the case of the poor or incompetent victims ($Fs < 1.00$), did not view the crime as more serious in those conditions ($Fs < 1.80$, $ps > .10$), or judge those defendants as more likely to repeat a similar crime ($Fs < 1.00$). All interactions were nonsignificant ($Fs < 1.00$).

This and an earlier study[1] with American college students serving as simulated jurors thus cast doubt on the popular assumption that severity of juridic judgment will be increased when sympathy is elicited for the victim by emphasizing the degree of his injury or the opportunistic advantage that was taken of his frailties (at least for property crimes).

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CURRENT PROBLEMS AND RESOLUTIONS

Under this heading appear summaries of data which, in 500 words or less, would increase our comprehension of socially compelling problems, hopefully move us somewhat closer to a solution, and clearly show promise of transcending their own origin in the Zeitgeist; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting supplementary material from Microfiche Publications.

The Journal of Social Psychology, 1976, **100**, 317-318.

INVESTIGATING ETHNIC PREJUDICE AMONG BOYS IN RESIDENTIAL TREATMENT*

The Children's Village, Dobbs Ferry, New York

CHARLES SCHAEFER AND SWAN BROWN

Recently, Duke and Nowicki[1] reported the development of a new interpersonal status measure, entitled the Comfortable Interpersonal Distance (CID) Scale. The CID is an easily administered test in which the *S* is asked to indicate on a diagramatic drawing of a room, how close he would like to sit next to other people in the room; i.e., how far away the *S* wants certain other people to sit in order for him to feel psychologically comfortable.

In the present study, the CID was individually administered to 53 boys, ages 8-13, at a residential treatment center for emotionally disturbed children. A total of four cottages (14 to 15 boys in each cottage) from one of the four on-grounds units participated. All of the *S*s were from low-income, multiproblem families. There were 32 Black, 11 Caucasian, and 10 Hispanic children in the study. Children from all three ethnic groups were integrated in each of the four cottages studied. Each child gave a CID score for all the other boys in his cottage. The CID score was simply the distance from the center of the diagramatic room—which represented the *S*'s location—to the position in the room that the *S* selected for the other boy to sit. The range of possible CID scores was 0 to 74 millimeters.

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* Received in the Editorial Office, Provincetown, Massachusetts, on July 3, 1975.
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[1] Duke, M. P., & Nowicki, S. A new measure and social learning model for interpersonal distance. *J. Exper. Res. in Personal.*, 1972, 6, 119-132.

The distributions of CID scores were found to be bimodal in nature,[2] indicating that there was a strong tendency for the boys to want to sit either very close or very far away from other boys in their cottages. To test for possible ethnic differences, the Kruskal-Wallis H test was used to compare variances between the three ethnic groups. None of the three H values proved significant (.05) level) which means that there were no substantial differences between the CID distances that members of each ethnic group assigned to members of their own group as opposed to the other two groups. The finding that there were no ethnic or racial differences in the social perceptions of the boys supports the independent observations of their cottage counsellors who reported that it was rare for fights or conflicts to break out among the boys where ethnic or racial factors were found to be the cause.

The results confirm the value of the CID as a quick, economical means for investigating ethnic prejudice among groups of youth. In comparison with sociometric techniques for measuring interpersonal status, the CID Scale seems more advantageous because it requires the *S* to think about and assess every other person in the group on a wide-ranging scale (range of possible scores is 0-74), whereas the sociometric procedure asks the child to rate others on a very constricted scale (range of scores is +3 to −3).

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[2] Descriptive statistics for the CID are available upon request to the author at the address shown at the end of this article.

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EFFECTS OF PERSUASIVE COMMUNICATION ON ACCEPTANCE OF A COURSE ON POPULATION DYNAMICS*

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JANAK PANDEY AND M. E. KHAN

In recent years, attempts have been made in India to develop courses on population dynamics because the subject is so vitally important in our country. Faneuff[1] and Viederman[2] have reported advantages of an educational approach to information about population dynamics. The success of such a program depends on the acceptance of the course by students. The present study was designed to show the effects of providing information on a population dynamics course on its acceptance.

A 2 × 2 factorial within *S*s design based upon experimental and control groups with pretest and posttest was employed. There were 18 male engineering students in each group from an introductory class of the Indian Institute of Technology. A questionnaire based on a six-point scale was used as the instrument to assess both *S*s' willingness to take the course and acceptance of the course as a requirement in the degree program. First, experimental and control *S*s, sitting in different rooms, completed the questionnaire. Each group then listened to a different type of 15-minute lecture by a different instructor (the experimental lecture outlined the course on population dynamics; the control lecture was about sociological theory). Following the lectures, the *S*s were requested to complete the questionnaire once again. Thus, pre- and posttests, as well as the manipulation, all occurred in a single session. Later on, all *S*s were debriefed.

Analysis of variance scores showing willingness to take the course revealed that *S*s of experimental ($\bar{x}$ = 5.00) and control groups ($\bar{x}$ = 5.30) did not differ significantly ($F = 2.79$, $df = 1/34$, $p > .05$). The *S*s responses on pretest ($\bar{x}$ = 5.05) and posttest ($\bar{x}$ = 5.25) did not reach significance level

* Received in the Editorial Office, Provincetown, Massachusetts, on July 15, 1975.
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[1] Faneuff, C. T. Action research: Developing a pilot model for teaching population dynamics in Mysore State, India. Carolina Population Center, University of North Carolina, Chapel Hill, 1972.

[2] Viederman, S. Towards a broader definition of population education. *Internat. Soc. Sci. J.*, 1974, **26**(2), 315-327.

the course was completed .14; scores expected on the "final exam" when it was initially taken .15; year in school .12; type of theoretical explanation believed in most, with 1 = common sense and 3 = biblical −.15; belief that philosophy should only be "done" by professionally trained philosophers −.17.

Study 4 (112 nonstudent adults interviewed by telephone in Cookeville, Tennessee, spring of 1975): desirability of being very religious −.18; desirability of being very happy −.18; education level attained .38; general social desirability expressed −.21; desirability of having a high *IQ* −.31.

Though the observed correlations between self-estimated *IQ* and associated variables generally are small, their theoretical consistency with *S*s differing in sex, age, and educational attainment may perhaps be interpreted as suggestive, though certainly not conclusive, evidence that the dimension of "intelligence" may possibly be validly measured without making use of what are increasingly considered methodologically and conceptually questionable *IQ* test batteries.

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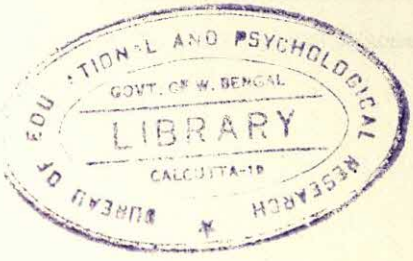

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AUTHOR INDEX

Allen, Bem P. 145
Anderson, David R. 313
Babad, Elisha Y. 269
Bethlehem, Douglas W. 189
Bochner, Stephen 277
Boor, Myron——, —— 143, 315
Brown, Robert C., Jr. 77
Brown, Swan 317
Burke, Ronald J. 235
Calsyn, Robert J. 51
Carsrud, Alan L. 263
Cech, Richard B. 291
Chang, Edward C. 89
Chapko, Michael K. 149
Dabbs, James M., Jr. 59
Donnelly, James H., Jr. 153
Donnerstein, Edward 111
Donnerstein, Marcia 111
Duncan, Robert 277
Ebbesen, Ebbe B. 45
Edney, Julian J. 207
Etzel, Michael J. 153
Farrell, Michael 227
Fisher, Judith L. 219
Fishman, Leslie 285
Giles, Howard 11
Gilroy, Faith D. 299
Gorman, John 227
Granzberg, Gary 181
Greller, Martin M. 297
Griffith, Mac 157
Guest, Thomas A. 257
Gunn, John D. 245
Harris, Mary B. 219
Hautaluoma, Jacob E. 199
Hitchcock, Jan L. 307
Hogan, H. Wayne 321
Ilgen, Daniel R. 245
Ivancevich, John M. 153
Izzett, Richard 285
Jegede, Olukayode 175
Jordan, Nancy L. 207
Kawash, George F. 99
Keeton, Anne 163
Kennedy, Elizabeth 277
Khan, M. D. 319
Kingsley, Phillip R. 189
Klusman, James E. 199
Koenig, Gail R. 65
Konecni, Vladimir J. 45
Lambert, Wallace E. 11
Larsen, Knud S. 107
Lever, H. 21
Levy, Marguerite F. 123
Manderscheid, Ronald W. 65
Mason, David 145
Mathes, Eugene W. 257
McGlynn, Richard P. 311
McLean, Leslie D. 163
Miller, Thomas W. 147
Mjoli, Q. T. 3
Munroe, Robert L. 307
Munroe, Ruth H. 307
Orr, Fred 277
Pandey, Janak 319
Perry, Ronald W. 137
Powell, Patricia H. 59
Ritter, Edward H. 89
Roger, D. B. 3
Rosenberg, Stanley 227
Schaefer, Charles 317
Scherf, Gerhard W. H. 99
Schick, Connie 311
Sigelman, Carol K. 35
Sigelman, Lee 35
Silbergeld, Sam 65
Singer, Lenore 309
Solomon, Henry 149, 309
Solomon, Linda Zener 309
Steinbacher, Roberta 299
Steininger, Marion 155
Taylor, Donald M. 11
Tedeschi, James T. 77
Thompson, John E. 263
Voegtlin, Kathleen 155
Walker, C. Eugene 157
Walker, Carol A. 207
Weisz, Paula 269
Wolfe, Raymond N. 151

TABLE OF CONTENTS

Personal space and acculturation 3
By D. B. Roger and Q. T. Mjoli

Dimensions of ethnic identity: An example from northern Maine 11
By Howard Giles, Donald M. Taylor, and Wallace E. Lambert

Frustration and prejudice in South Africa 21
By H. Lever

Authority and conformity: Violation of a traffic regulation 35
By Carol K. Sigelman and Lee Sigelman

Distortions of estimates of numerousness and waiting time 45
By Vladimir J. Konecni and Ebbe B. Ebbesen

Group responses to territorial intrusion 51
By Robert J. Calsyn

Physical attractiveness and personal space 59
By Patricia H. Powell and James M. Dabbs, Jr.

Assessment of the psychosocial environment of the classroom: The class atmosphere scale 65
By Sam Silbergeld, Gail R. Koenig, and Ronald W. Manderscheid

Determinants of perceived aggression 77
By Robert C. Brown, Jr. and James T. Tedeschi

Ethnocentrism in black college students 89
By Edward C. Chang and Edward H. Ritter

Husband/wife comparisons of price-quality relationships in the post-purchase situation 99
By Gerhard W. H. Scherf and George F. Kawash

Fascism and attitudes toward mandatory sterilization: The development of an attitude scale 107
By Knud S. Larsen

Variables in interracial aggression: Exposure to aggressive interracial interactions ... 111
By Marcia Donnerstein and Edward Donnerstein

Deferred gratification and social class 123
By Marguerite F. Levy

Attitude scales as behavior estimation devices: Scale specificity and prediction accuracy 137
By Ronald W. Perry

CROSS-CULTURAL NOTES

Relationship of internal-external control and national suicide rates 143
By Myron Boor

REPLICATIONS AND REFINEMENTS

The bystander effect as a function of ambiguity and emergency character 145
By David Mason and Bem P. Allen

The effects of core facilitative conditions in mother on adolescent self-esteem 147
By Thomas W. Miller

CURRENT PROBLEMS AND RESOLUTIONS

Air pollution and recreational behavior 149
By Michael K. Chapko and Henry Solomon

Trust, anomia, and locus of control: Alienation in U.S. college students in 1964, 1969, and 1974 151
By Raymond N. Wolfe

Social character and consumer innovativeness 153
By Michael J. Etzel, James H. Donnelly, Jr., and John M. Ivancevich

Attitudinal bases of recycling 155
By Marion Steininger and Kathleen Voegtlin

Characteristics associated with expressed willingness to participate in psychological research 157
By Mac Griffith and C. Eugene Walker

BOOKS RECENTLY RECEIVED 159

Socioeconomic status and intelligence related to children's serial recall 163
By Anne Keeton and Leslie D. McLean

The identity status of Nigerian university students 175
By R. Olukayode Jegede

Delay of gratification and abstract ability in three societies 181
By Gary Granzberg

Zambian student attitudes toward others, based on tribe, class, and rural/urban dwelling 189
By Douglas W. Bethlehem and Phillip R. Kingsley

The validation of dissonance *versus* impression-management theories 199
By James E. Klusman and Jacob E. Hautaluoma

Is there reactance in personal space? 207
By Julian J. Edney, Carol A. Walker, and Nancy L. Jordan

Modeling, arousal, and aggression 219
By Judith L. Fisher and Mary B. Harris

Revising race prejudice scales 227
By Stanley Rosenberg, Michael Farrell, and John Gorman

Occupational stresses and job satisfaction 235
By Ronald J. Burke

Affective consequences of disconfirming performance exceptions 245
By Daniel R. Ilgen and John D. Gunn

Anonymity and group antisocial behavior 257
By Eugene W. Mathes and Thomas A. Guest

The effects of experimentally induced illusions of invulnerability and vulnerability on decisional risk taking in triads 263
By John E. Thompson and Alan L. Carsrud

Effects of social satiation on efficacy of social and nonsocial reinforcers 269
By Elisha Y. Babad and Paula Weisz

Acquaintance links between residents of a high rise building: An application of the "small world" method 277
By Stephen Bochner, Robert Duncan, Elizabeth Kennedy, and Sred Orr

Defendant sentences as a function of attractiveness and justification for actions 285
By Richard Izzett and Leslie Fishman

The effect of an interview on perception of the interviewing organization 291
By Martin M. Greller and Richard B. Cech

Persuasibility and persuasiveness as a function of sex 299
By Roberta Steinbacher and Faith D. Gilroy

CROSS-CULTURAL NOTES

Coins and countries: The value-size hypothesis 307
By Jan L. Hitchcock, Robert L. Munroe, and Ruth H. Munroe

REPLICATIONS AND REFINEMENTS

The effects of salience of consequences on attitudes towards Women's Liberation ... 309
By Henry Solomon, Lenore Singer, and Linda Zener Solomon

Cooperation *versus* competition in group concept attainment under conditions of informational exchange 311
By Connie Schick and Richard P. McGlynn

Eye, contact, topic intimacy, and equilibrium theory 313
By David R. Anderson

Effects of victim injury, victim competence, and defendant opportunism on the decisions of simulated jurors 315
By Myron Boor

CURRENT PROBLEMS AND RESOLUTIONS

Investigating ethnic prejudice among boys in residential treatment 317
By Charles Schaefer and Swan Brown

Effects of persuasive communication on acceptance of a course on population dynamics 319
By Janak Pandey and M. E. Khan

Construct validity of self-estimated *IQ* scores 321
By H. Wayne Hogan

BOOKS RECENTLY RECEIVED 323

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The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes *(Check one)*

☐ HAVE NOT CHANGED DURING PRECEDING 12 MONTHS ☐ HAVE CHANGED DURING PRECEDING 12 MONTHS *(If changed, publisher must submit explanation of change with this statement.)*

10. EXTENT AND NATURE OF CIRCULATION	AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	ACTUAL NO. COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE
A. TOTAL NO. COPIES PRINTED *(Net Press Run)*	2867	2875
B. PAID CIRCULATION 1. SALES THROUGH DEALERS AND CARRIERS, STREET VENDORS AND COUNTER SALES	none	none
2. MAIL SUBSCRIPTIONS	2280	2313
C. TOTAL PAID CIRCULATION *(Sum of 10B1 and 10B2)*	2280	2313
D. FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES	34	34
E. TOTAL DISTRIBUTION *(Sum of C and D)*	2314	2347
F. COPIES NOT DISTRIBUTED 1. OFFICE USE, LEFT OVER, UNACCOUNTED, SPOILED AFTER PRINTING	553	528
2. RETURNS FROM NEWS AGENTS	none	none
G. TOTAL *(Sum of E, F1 and 2—should equal net press run shown in A)*	2867	2875

11. I certify that the statements made by me above are correct and complete.

SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER
Powell Murchison, Business Manager

12. FOR COMPLETION BY PUBLISHERS MAILING AT THE REGULAR RATES *(Section 132.121, Postal Service Manual)*

39 U. S. C. 3626 provides in pertinent part: "No person who would have been entitled to mail matter under former section 4359 of this title shall mail such matter at the rates provided under this subsection unless he files annually with the Postal Service a written request for permission to mail matter at such rates."

In accordance with the provisions of this statute, I hereby request permission to mail the publication named in Item 1 at the phased postage rates presently authorized by 39 U. S. C. 3626.

SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER
Powell Murchison, Business Manager

(See instructions on reverse)

ABBREVIATIONS OF WORDS USED IN THE TITLES OF JOURNALS

(One-word titles are never abbreviated. The word "the" is not used, nor its equivalent in any other language. The word "of" or its equivalent in other languages is used only to discriminate what would otherwise be identical titles in different languages. The word "and" is always used, but indicated by "&" in the Roman alphabet. Only English words are indicated here, but the corresponding words in other languages should receive a corresponding abbreviation. All abbreviations and all one-word titles should be in italics.)

Abnormal	*Abn.*
Abstracts	*Abst.*
American	*Amer.*
Anatomy	*Anat.*
Animal	*Anim.*
Applied	*Appl.*
Archives	*Arch.*
Association	*Assoc.*
Attitude	*Attit.*
Australian	*Aust.*
Behavior	*Behav.*
British	*Brit.*
Bulletin	*Bull.*
Bureau	*Bur.*
Canadian	*Can.*
Character	*Charac.*
Children	*Child.*
Chinese	*Chin.*
Clinical	*Clin.*
College	*Coll.*
Comparative	*Comp.*
Consulting	*Consult.*
Contributions	*Contrib.*
Development	*Devel.*
Educational	*Educ.*
Experimental	*Exper.*
General	*Gen.*
Genetic	*Genet.*
Indian	*Ind.*
Industrial	*Indus.*
International	*Internat.*
Italian	*Ital.*
Japanese	*Jap.*
Journal	*J.*
Mathematical	*Math.*
Measurement	*Meas.*
Medical	*Med.*
Mental	*Ment.*
Monographs	*Monog.*
Neurology	*Neurol.*
Opinion	*Opin.*
Orthopsychiatry	*Orthopsychiat.*
Personality	*Personal.*
Personnel	*Person.*
Philosophy	*Philos.*
Physics	*Phys.*
Physiology	*Physiol.*
Proceedings	*Proc.*
Psychiatry	*Psychiat.*
Psychoanalysis	*Psychoanal.*
Psychology	*Psychol.*
Psychosomatic	*Psychosomat.*
Quarterly	*Quart.*
Religious	*Relig.*
Research	*Res.*
Review	*Rev.*
School	*Sch.*
Science	*Sci.*
Social	*Soc.*
Statistics	*Stat.*
Studies	*Stud.*
Teacher	*Teach.*
University	*Univ.*

Preparation of Manuscripts for The Journal Press

General Instructions

1. The proper sequence for the parts of your submitted manuscript is as follows: (*a*) t
(*b*) references, (*c*) footnotes, (*d*) tables, (*e*) figures, and (*f*) figure legends. However, mo
graphs start with a table of contents and may have an acknowledgment page before the t
and an appendix immediately after the text.

2. Use heavy typewriter paper, 8½ × 11 inches, double-space *all* lines, and leave marg
for editorial work. Do not use onionskin, odd sizes, and abrasive or wax finishes.

3. Submit original typewritten version and one copy. Retain second copy for proofing.

4. Retype any page on which written corrections have been made.

5. Do not begin a sentence with a numeral.

6. A summary at the beginning of the text is required for articles over 500 words.

7. Each quotation should indicate the page number of the original source. The original p
lisher must give permission for lengthy quotations and use of tables or figures.

8. Do not fold your manuscript.

9. Enclose a submission letter, with a statement that the manuscript is not under considera
elsewhere. If you are unknown to the Editors, kindly give your credentials.

FORMAT AND SPECIFIC INSTRUCTIONS

A. Text Divisions

I. THE TITLES OF JOURNAL ARTICLES AND THE MAJOR SUBDIVISIONS OF MONOGRAPHS ARE PRINTED IN TEN-POINT CAPS CENTERED ON THE PAGE

A. The Next Subdivision Title Is Printed in Caps and Small Caps Centered on the P

1. *Then Italics, with Principal Words, Upper and Lower Case, Centered on the Page*

a. Then italics, upper and lower case, 1-em run-in side head.

(1). *Then italics, upper and lower case, 2-em run-in side head.*

(*a*). *Then italics, upper and lower case, 3-em run-in side head.*

[Further subdivision should be merged into the text without marginal indentat
and should be numbered with small letters.]

B. References

References should be arranged in alphabetical order by author, numbered and ref
to in the text by number (2). Double-space!

The proper form of a book reference is as follows:

2. Doe, J. The Preparation of Manuscripts. New York: Holt, 1963. Pp. 400-418.

The proper form of a journal reference is as follows:

2. Doe, J. The preparation of manuscripts. *J. Gen. Psychol.*, 1963, 68, 450-462.

If in the text it is desirable to refer to a page, thus (2, p. 45).

C. Footnotes

Use as few as possible and number consecutively in the text thus.[1]

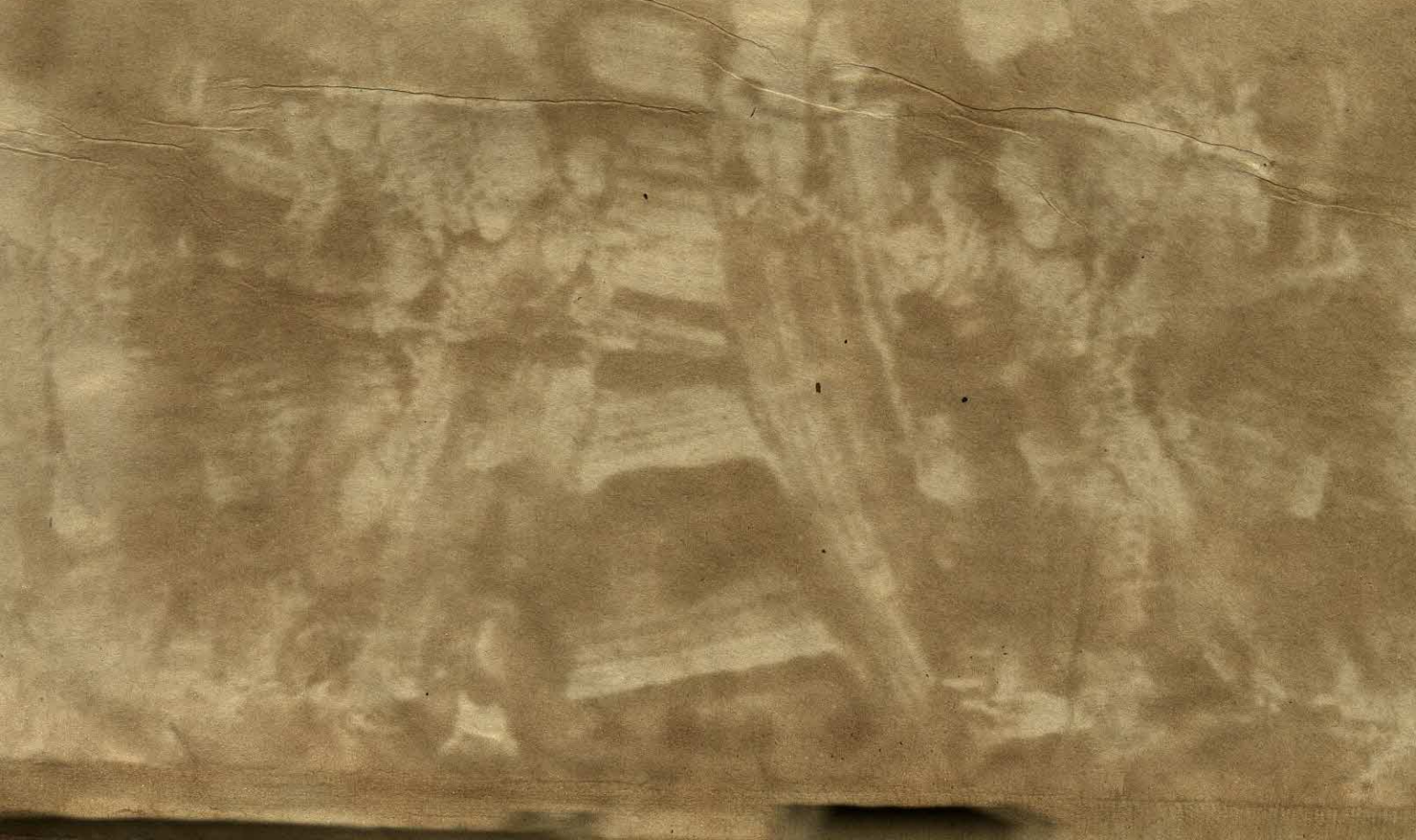
[1] Footnote (on the separate footnote page). Double-space!

D. Tables

Each table should be typed on a separate sheet and should be Arabic numbered (Tab
Each column requires a heading. Vertical lines should be avoided. Mention tables consec
in the text and indicate approximate insertion points.

E. Figures

Figures should be submitted as glossy prints of the approximate size for final reprod
(ordinarily 4-4½ inches in width). Lettering and lines should be sharp and clean. F
should be Arabic numbered (Figure 2) in the text, and have consecutive mention and ap
mate insertion points. Each figure requires a legend, but all legends should be submitted do
spaced on a separate Figure Legends page.



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